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Fight, Flight, and Free Will: How Knowledge of Biopsychosocial Effects of Trauma Influence Free Will Beliefs and Punishment for Juvenile and Adult Offenders

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Fight, Flight, and Free Will: How Knowledge of Biopsychosocial Effects of Trauma Influence
Free Will Beliefs and Punishment for Juvenile and Adult Offenders

by

Rachel Lazar

A thesis submitted to the Psychology Department of
John Jay College of Criminal Justice
in partial fulfillment of the requirements for the degree of
Master of Arts in Forensic Psychology

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Abstract

Justifications for punishment are generally grounded in retribution or consequentialism. Retribution presupposes a belief in free will, claiming that offenders freely and rationally choose to commit a criminal act, and are therefore deserving of punishment. Consequentialism does not necessitate a reliance on free will, and views punishment as means to a valuable end. In recent years, neuroscientific research has challenged the notion of free will, providing one pathway for a public shift away from retribution and towards consequentialism. However, methods by which to instill this doubt in laypeople are still being discovered. To date, no studies have attempted to instill free will doubt by providing participants with biopsychosocial effects of trauma, despite evidence showing that traumatic experiences may involuntarily influence behavior. This study used a 2 (biopsychosocial information, neutral information) x 2 (juvenile offender, adult offender) between-subjects design and measured beliefs in free will and justifications for punishment. Results showed a main effect of trauma informed psychoeducation on free will beliefs, such that individuals who watched a trauma video had lower free will beliefs compared to individuals who watched a control video. Effects of trauma informed psychoeducation on sentence severity and on justifications for punishment were nonsignificant. Mediation analyses showed that perceived culpability had an indirect effect on the relations between trauma informed psychoeducation and retribution [-.3106, -.0339], consequentialism [-.1257, -.0013], and punishment severity [-.3117, -.0327]. In a sense, we have taken the initial steps toward the development of a new method by which to facilitate a shift in public perception away from retribution.

Keywords: Free Will; Punishment; Retribution; Consequentialism; Biopsychosocial; Trauma

Fight, Flight, and Free Will: How Knowledge of Biopsychosocial Effects of Trauma Influence
Free Will Beliefs and Punishment for Juvenile and Adult Offenders

Introduction

Justifications for punishment are generally either retributivist or consequentialist in nature. Retribution presupposes a belief in free will, claiming that offenders freely and rationally choose to commit a crime, have a “guilty mind” (*mens rea*), and are therefore “deserving” of punishment. In contrast, the consequentialist framework is grounded in consequences, and justifies punishment as means to a valuable end, such as crime reduction, deterrence, incapacitation, or rehabilitation. Consequentialism does not necessitate a reliance on the notion of free will and does not require that moral judgements be made on an offender’s behavior. In recent years, some neuroscientific research has focused on causes of human behavior that have been shown to exist outside of conscious awareness, and has therefore questioned the notion of free will entirely (Bargh & Chartrand, 1999; Greene & Cohen, 2004; Swartz, 2002). With these neuroscientific advances, many challenge the retributive justification for legal punishment relied on in the United States, seeking to shift public opinion away from retribution and towards consequentialism (Appelbaum, 2015; Koppel & Fondacaro, 2018; Shariff et al., 2014).

Recent research has shown that people’s support for retributive punishment can be reduced when they are provided with information that instills free will doubt (Schooler, Nadelhoffer, Nahmias & Vohs, 2014; Shariff et al., 2014). Consequently, retributive urges of the public may be malleable, providing one potential pathway for the public’s support of criminal justice reform away from retribution and towards consequentialism. However, there have also been studies showing that free will beliefs are stable and difficult to manipulate (Schooler et al.,

2014). This contradictory research highlights the complexity of free will beliefs as well as the implications of methods for manipulating those beliefs (Schooler et al., 2014). Along those lines, empirical methods in which to instill free will doubt in laypeople are still being discovered.

Most studies that have sought to instill free will doubt in people have used literature that attempts to debunk the existence of free will entirely as their anti-free will manipulation, and have found varied results (Schooler et al., 2014). Fewer studies have designed a more domain specific anti-free will manipulation, such as one that discusses how particular experiences might influence behavior. To date, no studies have used information on biopsychosocial effects of childhood trauma as an anti-free will manipulation, despite evidence suggesting that experiencing trauma involuntarily affects behavior through a variety of biological and psychological mechanisms (Carpenter et al., 2007; Coates, 2010; Fox, Perez, Cass, Baglivio & Epps, 2015; Murray-Close, Han, Cicchetti, Crick & Rogosch, 2008; Neigh, Gillespie, & Nemeroff, 2009; Perry, Pollard, Blakely, Baker, & Vigilante, 1995). Further, the experience of being a victim of childhood trauma is a highly prevalent risk factor for juvenile and adult aggression (Abram, Teplin, Charles, Longworth, McClelland, & Dulcan, 2004; Baglivio, Epps, Swartz, Huq, Sheer, & Hardt, 2014; Dierkhising, Ko, Woods-Jaeger, Briggs, Lee, & Pynoos, 2013; Fox et al., 2010; Teague, Mazerolle, Legosz, & Sanderson, 2008; Widom, 1989; Widom & Maxfield, 2001; Widom, 2017). Therefore, the biopsychosocial framework appears to be a more scientifically valid way to conceptualize an offender's criminal behavior as opposed to their free will.

We wonder, would informing laypeople about the long term biopsychosocial effects of childhood trauma on behavior influence their beliefs in free will and their subsequent

justifications for punishment? Additionally, would participants be influenced equally if an offender was a juvenile or an adult? The primary aim of this study was to understand the impact of knowledge of the biopsychosocial effects of childhood trauma on beliefs about free will and justifications for punishment for both juvenile and adult offenders.

The Free Will Debate

The existence and nature of free will has been debated by philosophers, scientists, religious leaders, and laypersons for millenia. In its simplest form, free will is defined as having the ability to make a choice without the constraint of necessity or fate; in other words, having the ability to choose otherwise (Timpe, n.d.). If Sarah sits down at a restaurant and is asked whether she wants to order the chicken or the fish, and she chooses the fish without external forces necessitating her decision, and without fate predetermining her order, we can presume that Sarah has free will over her decision. However, if an external force constrained her decision, such as Sarah having a chicken allergy, we might see her decision to choose the fish as lacking free will. Additionally, if fate, through the laws of physics, nature, or a higher being, predestined Sarah to choose the fish, we might see her decision to choose the fish over the chicken as lacking free will. That is free will explained at its most basic level.

One controversial free will debate lies in whether the ability to choose without the constraint of necessity or fate (i.e., to choose otherwise), is scientifically possible. Since the laws of physics dictate a deterministic universe, is it ever possible to “choose otherwise?” Can Sarah ever really choose the chicken if the laws of physics predetermine her to choose the fish? There are three standard responses to this free will problem (Greene & Cohen, 2004). The first is hard determinism, which asserts determinism and rejects the possibility of free will, stating that the

two are mutually exclusive (Sarah's decision to choose the fish was predetermined and therefore she had no free will). The second is libertarianism which asserts free will and rejects determinism, also stating that the two are mutually exclusive (Sarah's choice was not predetermined and therefore her decision was a function of her free will). The third is compatibilism, which asserts that both determinism and free will may be simultaneously possible, stating that free will and determinism are not mutually exclusive. According to Greene and Cohen (2004), the compatibilist response relies on a different conceptualization of free will, mainly that "a freely willed action is one that is made using the right sort of psychology—rational, free of delusion" (p. 1777). In this way, there can be the possibility of freely willed actions in a universe where actions are also fully determined by natural laws and past events (Atiq, 2013).

In recent years, neuroscientific research has made significant contributions to the free will debate. Notably, Benjamin Libet conducted studies in the 1980s in which he asked participants to perform simple motor activities and document when they had become consciously aware of their decision to perform the activity. EEG results showed brain activity prior to participants' conscious awareness, scientifically challenging the notion of freely willed decisions (Libet, 1985). Since the 1980s, some neuroscientists have continued to challenge the notion of free will. However, it is important to make clear that challenging the existence of free will does not equate to humans acting without strategy or rational thought. The neuroscientific argument is not that humans make decisions and act without rational thought; but rather, that mental processes outside of human awareness or control are put into motion when an individual makes a

decision or takes an action, and therefore decisions and actions are not freely willed in the metaphysical sense.

To summarize, opinions have been written over several millennia addressing the controversial nature of free will through scientific and philosophical lenses, most of which are beyond the scope of this study. We have defined the basic definition of free will, the three primary responses to the free will problem (hard determinism, libertarianism, and compatibilism), and described some recent neuroscientific advancements. The present empirical study does not aim to speak to the larger issue of whether free will does or does not exist. Instead, we focus on the effects free will beliefs have on justifications for punishment, as well as the effects of a trauma-informed psychoeducational intervention designed to influence those beliefs.

Free Will, Moral Responsibility, and Legal Punishment

Why should we care whether people's decisions or actions are a function of free will or not? Perhaps one of the most important reasons lies in the relationship between free will, moral responsibility, and punishment. Most philosophers claim that free will is associated with moral responsibility, as acting with free will seems to satisfy the metaphysical requirement for responsibility for one's actions (O'Connor, 2016). Along those lines, justifications for punishment are generally either retributivist or consequentialist in nature. The retributive framework is grounded in just desert and justifies punishment as intrinsically deserved in direct proportion to the crime committed. Retribution explicitly or implicitly presupposes a belief in free will, claiming that since offenders freely and rationally choose to commit a crime, they are morally deserving of punishment (Greene & Cohen, 2004). In contrast, the consequentialist

framework is grounded in consequences, and justifies punishment as means to a valuable end, such as crime reduction, deterrence, incapacitation, or rehabilitation. Consequentialism does not necessitate a reliance on the notion of free will, as an offender's freedom, rationality, or "deservingness" is not in question nor relevant.

A common and yet misconception about consequentialism is the fear that nobody can be held responsible for their actions, since factors outside of their control determined their behavior. Highlighting this fear, Denno (1988) writes, "one could argue that all behavior could be excused or defended if we simply locate the causing factors. Such an argument leads to the "absurd conclusion that no one is responsible for anything" and therefore no one can be punished" (p. 661). However, challenging the notion that an offender freely chose to commit an act does not necessitate them not being held legally responsible for their actions. Under consequentialism, an offender may still be punished in order to keep society safe, or in order to deter others from committing crime, or until they can be rehabilitated.

In practice, an offender can be punished either similarly or quite differently under a retributive versus consequentialist framework. It is the motivation for punishment that differs between them and is of primary importance, as when one concludes that an offender chose to commit a crime simply because they freely made a decision to, the door to a more holistic understanding of factors that influence crime is often closed. To explain, Gilligan (1997) writes, "to say that the cause of the evil act (*actus reus*) is the evil mind of the actor (*mens rea*) is merely to say the same thing: a tautology adds nothing to what we already know" (p. 92). He continues, "as long as we think of [violence] as a moral problem, we will never be able to learn what causes

it or what prevents it” (p. 94). If we truly wish to understand what influences offending, and work towards preventing criminal behavior, it is important to move away from retribution.

Yet, the current legal system in the United States remains grounded in a retributive ethos (Beatty & Fondacaro, 2018). A conviction through our current legal system generally necessitates the existence of both *mens rea* (a guilty mind) and *actus reus* (a guilty act). *Mens rea* includes four hierarchical categories: purpose, knowledge, reckless, and negligent—each relying on the notion that human beings have free will over their actions (Koppel & Fondacaro, 2018; Gordon & Fondacaro, 2018).

In addition to the legal system as a whole relying on the notions of retribution and free will, research has shown that individuals tend to attribute the highest levels of conscious intent when deciding criminal justice sanctions. Beatty and Fondacaro (2018) examined mock jurors’ ability to reliably and accurately judge a defendant’s conscious intent at the time of an offense and found a high level of attributing purpose even when the defendant in the scenario did not, in fact, act in alignment with purpose at all. Additionally, attributing purpose increased when a scenario’s harm increased, showing that when individuals *want* to punish (when we have a “retributive itch”), more intent is attributed, an effect some label motivated cognition (Sood, 2013). Koppel and Fondacaro (2015) coined the term “retribution heuristic” to express mental shortcuts that individuals use when determining sentences and intent; shortcuts that often reflect faulty intuitions.

This reliance on the notion of free will in our legal system can be thought of as a *value preference*, rooted in deontology rather than empirical evidence. Denno (1988), quoting Herbert Packer, writes that “The idea of free will in relation to conduct is not, in the legal system, a

statement of fact, but rather a value preference having very little to do with the metaphysics of determinism or free will.... Very simply, the law treats man's conduct as autonomous and willed, not because it is, but because it is desirable to proceed as if it were" (p. 663).

Additionally, Gilligan (1997) writes that "punishing requires much less effort than does understanding the many different forms of violence" (p. 24). How does the law enforce this value preference if some neuroscientific research has undermined free will? The law does this through making a distinction between free will in the metaphysical sense and 'general rationality.'

In Greene and Cohen's (2004) seminal paper "For the Law, Neuroscience Changes Nothing and Everything," the authors explain how although beliefs in free will underlie retribution, the law itself requires only that an individual was 'generally rational' at the time of their offense in order to be held legally responsible. They write, "The law [...] does not care if people have 'free will' in any deep metaphysical sense that might be threatened by determinism. It only cares that people in general are minimally rational" (p. 1778). Some end the conversation about free will and punishment right here, stating that the law focuses on rationality, and free will beliefs in a metaphysical sense are simply irrelevant in criminal law.

The Problem of Rationality

Ending the conversation with the idea that the legal system is concerned only with rationality and not free will in a metaphysical sense is problematic in several ways. First, Atiq (2013) points out, the technical notion of free will in legal doctrine departs significantly from ordinary folk concepts of free will—but that it is folk beliefs about free will that actually influence criminal law. The author writes that is because:

Everyday actors in the sentencing process are authorized to make irreducibly moral determinations outside of the ordinary doctrinal framework. These moral determinations contain implicit judgments about free will. Jurors, judges, and legislators are each required, at key points in the sentencing process, to make moral judgments that cannot be reached without reference to the person's own understanding of human agency. As a result, sentencing actors give legal effect to widely held folk beliefs about free will, beliefs that are in fact threatened by modern science. (p. 452).

Essentially, it is the free will beliefs of individual legal professionals and laypersons that do, in fact, have implications for offenders within the legal system. Folk beliefs in free will (which contain implicit judgments about free will) do impact sentencing, despite the legal system making a distinction between free will and rationality.

What are these folk beliefs? Greene and Cohen (2004) write that although the law focuses on whether an individual was “sufficiently rational” at the time of the offense, what people really want to know is whether the person committed a crime (their imaginary homunculus), or whether some external circumstance caused the crime to be committed—a distinction that stems from a folk belief in free will. When deciding moral responsibility and punishment, people always want to know... “was it really *him* [the offender]? [...] was it *him*, or was it his *upbringing*? Was it *him*, or was it his *genes*? Was it *him*, or was it his *circumstances*? Was it *him*, or was it his *brain*? (pp. 1778-1779). To use recent examples, people have asked: Was it Adam Lanza who killed 26 children, or was it his brain, his upbringing, his mental health? Was it Dzhokhar and Tamerlan Tsarnaev who bombed the Boston Marathon or was it their upbringing, religion, brainwashing?

Was it Nikolas Cruz who gunned down students at Parkland High School, or was it his mental health, his environment, his history of being bullied?

Greene and Cohen (2004) respond to these questions by writing that “what most people do not understand, despite the fact that naturalistic philosophers and scientists have been saying it for centuries, is that there is no ‘him’ independent of these other things. (or, to be a bit more accommodating to the supernaturally inclined, there is no ‘him’ independent of these things that shows any sign of affecting anything in the physical world, including his behavior)” (p. 1779). Essentially, the categorical distinction between a “him” and a “something else” actually reinforces a “him;” a view not supported by much of neuroscience.

The second issue with relying on “general rationality” is that rationality is simply not an appropriate proxy for moral responsibility. To portray this conceptually, Greene and Cohen (2004) discuss “*The Boys from Brazil* problem” (p. 1779-80). In the fictional film, *The Boys from Brazil*, Nazi officers attempted to recreate Hitler after the war. They did this by cloning children genetically identical to Hitler and by recreating the environment Hitler had. Greene and Cohen use this film as an analogy and write, “Let us suppose, then, that a group of scientists has managed to create an individual—call him ‘Mr. Puppet’—who, by design, engages in some kind of criminal behavior; say, a murder during a drug deal gone bad. The defense calls to the stand the project’s lead scientist: ‘Please tell us about your relationship to Mr. Puppet...’” (p. 1780). The authors go on to predict what the lead scientist might respond, saying that he (the scientist) carefully designed Mr. Puppet, selecting every gene and circumstance... choosing a mother who would let him cry for hours, telling every relative, friend and enemy how to treat him, and that

his entire life went 95% as planned. “I assure you,” the scientist might say, “the accused deserves none of the credit” (p. 1780).

The law would look to assess whether Mr. Puppet was sufficiently rational at the time of the crime, as we have discussed. Let us suppose that he was rational. Does Mr. Puppet *deserve* punishment in a moral retributive sense if forces beyond his control dominated his actions? Is Mr. Puppet not merely a pawn, or, well, a puppet? He might be dangerous, and we might not want him on the streets, but stating that Mr. Puppet is morally responsible for his actions seems quite foolhardy. Greene and Cohen (2004) write: “what is the difference between Mr. Puppet and anyone else accused of a crime?” (p. 1780). Is any offender more free than Mr. Puppet?

This analogy highlights a powerful argument for consequentialism, as well as for the importance of looking at external and internal factors that might be influencing criminal behavior. As we have already mentioned, it is important that we be rid of the retributive framework if we would like to look at influences on behavior, as a retributive framework is grounded in deontology and this distracts us from causal questions. Under consequentialism, we can hold Mr. Puppet accountable for his actions with a focus on consequences—keeping society safe, or deterring others from committing crimes. However, we do not need to make a moral claim on Mr. Puppet’s “deservingness.” In fact, if we were to remain focused only on Mr. Puppet’s deservingness and rationality, we would be distracted from analyzing internal or external forces that were influencing his actions. However, the legal system, in relying on folk beliefs in free will as well as rationality, continues to remain grounded in retribution.

It should be clear at this point that free will beliefs are associated with justifications for punishment and that the current legal system in the United States is grounded in retribution. It

should also be clear that folk free will beliefs in a metaphysical sense influence the attribution of criminal responsibility and culpability, as actors in the legal system continuously rely on their conceptions of free will to make moral judgements of others. Next, it should be clear that although the law technically holds offenders responsible when they are “generally rational,” rationality is a foolhardy basis for responsibility (The *Boys of Brazil* problem). Finally, it should be clear that if we truly wish to understand factors that influence offending, it is important that we move away from focusing on an offender’s rationality, and move towards a more holistic understanding of the internal and external factors influencing behavior.

A Better Approach: The Biopsychosocial Model

We have established that free and rational choices are not a helpful way to describe the factors that lead to crimes being committed. Like Mr. Puppet, there are factors outside one’s control and awareness that have influence over one’s behaviors. One framework in which to view these internal and external factors is the biopsychosocial framework, a view that characterizes behaviors as influenced by a combination of biological, psychological, and social factors. The framework was initially proposed by psychiatrist George Engel in 1977, in which he stated that in order to understand diseases and provide effective treatment, one must take into account the patient and the social context in which they live, in addition to their biological markers of disease (Engel, 1977, pp. 196-197). Since then, this framework has been extended across many disciplines (Bronfenbrenner, 1979; Coates, 2010; Dodge, Pettit & Dannemiller, 2003; Moos, 1973). In the context of criminal punishment, some researchers have recommended that we shift our focus towards a biopsychosocial view of crime (Fondacaro, 2014; Gilligan, 1997).

Applying this framework to the criminal justice system, it becomes clear that many incarcerated individuals have had risk factors at the biological, psychological, and social levels which increase their likelihood of engaging in criminal activity. One particular risk factor that has been shown to be highly prevalent in incarcerated samples, and is thought to influence individuals at biological, psychological, and social levels, is the experience of childhood trauma (Abram et al, 2004; Baglivio et al., 2014; Dierkhising et al., 2013; Fox et al., 2010; Teague et al., 2008; Widom, 1989; Widom & Maxfield, 2001; Widom, 2017).

Experiencing trauma may involuntarily influence behavior through its negative effect on the neuroendocrine system, the interactive system of the brain, nervous system, and hormones (Carpenter et al., 2007; Coates, 2010; Fox et al., 2015; Murray-Close et al., 2008; Neigh et al., 2009; Perry et al., 1995). Prolonged exposure to trauma can result in chronic neuroendocrine dysregulation. For example, studies have found that experiencing childhood trauma negatively affects the hypothalamic-pituitary-adrenocortical (HPA) axis, the primary system involved in stress regulation. The nervous systems of children who experience trauma are often in a state of hyperarousal, as they are in constant anticipation of danger. Their bodies are at many times flooded with fight-flight hormones, such as cortisol, and other stress-managing chemicals like adrenal steroids, growth hormones, and amino acids. Although these hormones and chemicals are beneficial when produced for short periods of time, prolonged activation from chronic stress, called allostatic load, may cause destructive physiological and behavioral responses. Concretely, abused children may have extreme and violent reactions to trivial stimuli as a result of neurological and physiological changes (Carpenter et al., 2007; Coates, 2010; Fox et al., 2015; Murray-Close et al., 2008; Neigh et al., 2009; Perry et al., 1995).

Additionally, experiencing trauma may involuntarily influence behavior through its negative effect on developmental outcomes such as affect regulation, attachment, development of the self, peer relationships, adaptation to school, and psychopathology (Cicchetti & Toth, 1995). For example, abused children are more likely to have trouble recognizing, expressing, or understanding their emotions. They often exhibit more aggression as a result, and are quicker to detect aggression, compared to children who were not abused.

Like a web of influences, these biopsychosocial factors can be conceptualized as the factors outside one's control and awareness and that have influence over behavior. This holistic biopsychosocial approach to understanding behavior is a significantly more appropriate view than both free will in a metaphysical sense and general rationality when it comes to conceptualizing individuals who have committed crimes. However, prior to this study, providing this biopsychosocial information as an anti-free will manipulation in order to attempt to influence beliefs in free will and justifications for punishment had not been empirically tested.

Manipulating Free Will Beliefs: Research to Date

Empirical research in recent years has tested the manipulations of free will beliefs and measured their effect on justifications for punishment. Most have used literature that presents a wide range of potential challenges to the general existence of free will as their anti-free will manipulation, and have found varied results (Schooler et al., 2014). Fewer studies have designed a more domain specific anti-free will manipulation, such as one that discusses how particular experiences might influence involuntary behavior, and have also found varied results (Appelbaum, Scurich, & Raad, 2015; Kim, Boytos, & Seong, 2015). To date, no studies have used literature on the biopsychosocial effects of childhood trauma as an anti-free will

manipulation, despite evidence showing that experiencing trauma may involuntarily affect behavior.

Shariff et al. (2014) found that stronger beliefs in free will predicted greater support for retributive punishment ($\beta = 0.24, p < .001$) and results remained significant after authors controlled for age, gender, education, religiosity, and economic and social political ideology. Additionally, the authors found that free will beliefs can be manipulated, subsequently affecting participants' support for retributive punishment. In one experiment, they found that participants who read passages that explicitly debunked free will recommended approximately half the length of a prison sentence compared to participants who did not read the passages [$M = 2.91, SD = 1.08$, vs. $M = 3.96, SD = 1.49$], $t(44) = 2.71, p < .05, d = 0.82$].

In another experiment, Sharif et al. (2014) found that participants who read passages that discussed a mechanistic view of human behavior without free will explicitly mentioned also recommended shorter prison sentences compared to participants who did not read the passages [$M = 3.10, SD = 1.48$, vs. $M = 3.83, SD = 1.77$], $t(86) = 2.09, p = .04, d = 0.45$] and blamed the offender less [$M = 5.48, SD = 1.17$, vs. $M = 6.03, SD = 0.92$], $t(86) = 2.40, p = .02, d = 0.52$]. Recommended punishment and perceived blameworthiness were significantly correlated, $r(88) = .37, p < .001$. Finally, the authors found that completing an undergraduate neuroscience course acted as an anti-free will condition; a paired-sample comparison showed prison sentence recommendations to be lower by students at the end of the neuroscience class compared to the start, decreasing from 3.41 to 2.91 on a 7-point scale, $t(33) = 2.15, p = .04, d = 0.44$. No change was found for students in a control class [$M_s = 3.32$ on the first day vs. 3.08 on the last day], $t(33) = 0.94, p = .41$]. Overall, studies by Shariff et al. (2014) suggest that free will beliefs can be

manipulated, and that shifting from a belief in free will towards a mechanistic view of human behavior reduces support for retributive punishment.

Other studies have also attempted to manipulate broad free will beliefs of participants. Koppel & Fondacaro (2018) attempted to instill free will doubt by providing participants with a passage from a lecture by Sam Harris, a neuroscientist, philosopher, and author of *Illusion of Free Will*. Similar to the Crick manipulation, Sam Harris argued against the general belief in free will. Their study did not find this free will doubt manipulation to have an effect on free will beliefs ($t(243) = -.374, p = .71, d = .05, 95\% \text{ CI } [-.24, .16]$). The authors note that while Harris describes the implications of science on free will, Crick explains *how* specific scientific advances have shown free will to be incompatible with our current understanding of nature, and suggest that a key factor in altering free will beliefs is the explanation of how science undermines free will.

Along those lines, several studies have attempted to instill free will doubt in a more domain specific way, such as by providing information on external factors that may be involuntarily influencing criminal behavior. For example, Appelbaum and colleagues (2015) looked at the effect of behavioral genetic information on perceptions of criminal responsibility and punishment. Their results showed no significant effect of the behavioral genetic information, but, as in many prior studies, their data showed a relationship between free will beliefs and sentence lengths, such that participants' suggested sentence length increased as their beliefs in free will increased. Kim et al. (2015) looked at the interactive effect of both biomedical information (BI) and childhood information (CI) on sentence lengths. Their results found that participants gave shorter sentences when BI was present and CI indicated an abusive family, and

when BI was absent and CI indicated a loving family. However, when BI was present and CI indicated a loving family, or when BI was absent and CI indicated an abusive background, participants recommended a longer sentence. Essentially, mitigating evidence can be a double-edged sword, depending on the combination. Interestingly, this study found no effect of BI or CI on free will beliefs.

Overall, there have been inconsistent findings in response to free will manipulations, highlighting how free will beliefs are complex and difficult to alter (Schooler et al., 2014). Regarding the continuous development of free will manipulations, Schooler and colleagues (2014) note that since free will beliefs are often stable, it may take strongly worded primes that contain multiple threats to free will to impact people's views. Additionally, Koppel and Fondacaro (2018) note that a key factor in altering free will beliefs may be the exposition of *how* science undermines free will. We incorporate both of these suggestions in our current manipulation.

Limitations of Previous Research

As free will beliefs are complex and at times difficult to alter, testing particular methods for manipulating free will doubt is an ongoing task (Schooler et al., 2014). Most research to date has attempted to manipulate beliefs in free will by providing participants with neuroscientific information challenging free will entirely. While some studies have found an effect, others have not. Fewer studies have attempted more domain specific free will manipulations, such as focusing on how particular experiences might influence involuntary behavior, and have also found varied results. To date, no studies have used information on the biopsychosocial effects of childhood trauma as an anti-free will manipulation, despite evidence showing that experiencing

trauma involuntarily effects behavior (Carpenter et al., 2007; Cicchetti & Toth, 1995; Coates, 2010; Fox et al., 2015; Murray-Close et al., 2008; Neigh et al., 2009; Perry et al., 1995). The current study attempts to fill this gap.

A second limitation we note is a lack of studies comparing beliefs about free will across categories of juveniles and adults. Juveniles have been on the forefront of many conversations about criminal responsibility (Fondacaro, 2014). In early American legal history, children under the age of seven were seen as incapable of having the necessary intent (*mens rea*) to commit a crime, and were therefore incapable of being charged with a felony. Children between the ages of seven and fourteen were in what was seen as a “gray zone,” and children older than the age of fourteen could be tried as adults. Throughout the 19th century, this view began to change, and social reformers began creating facilities for troubled juveniles with the goal of rehabilitation. Within 25 years, most states had incorporated a juvenile court into their justice system (American Bar Association Division for Public Education, 2017).

The early 20th century brought about the concept of adolescence, a view of juveniles as categorically different than adults. In a cyclical nature, the concept both informed a systematic change in juvenile justice, and the change in juvenile justice solidified the concept of adolescence in American society (Shook, 2005). Since the systematic implementation of juvenile courts, social forces have contributed to reforms, arguments, and counterarguments. During the civil rights era of the 1960s and 1970s, substantial reforms were made in the juvenile justice system (Shook, 2005), including what can be conceptualized as a “due process revolution” (Fondacaro, 2014). A counter-reform approach emerged in the early 1980s, as juveniles were not eliminated from the “tough on crime” attitude in America at that time. In fact, juveniles began to

be tried as adults in criminal court, could be sentenced to life in prison without the possibility of parole, and could receive the death penalty. Shook (2015) writes, “By blurring the distinction between juveniles and adults, it becomes increasingly difficult to separate the worlds of adults and children with regard to the criminal law. No longer is it presumed that juveniles possess less criminal culpability and responsibility than adults, and, thus, should be treated differently under the law” (p. 468). With this backdrop, counter-arguments focused on highlighting a distinct boundary between juveniles and adults appeared. According to Fondacaro (2014), the first decade of the 21st century can be conceptualized, then, as an “era of substantive reform” (p. 410).

This recent era of substantive reform has been heavily influenced by the fields of developmental psychology and neuroscience which have emphasized that adolescents are categorically different than adults in important ways. For example, behavioral scientists have inferred that adolescents are more impulsive than adults, leading to their greater susceptibility to participate in risky behavior, and neuroscientists have concluded that adolescents have an asymmetry of their brain systems, causing them to be driven by their emotions and not by their logical reasoning. Most recently, developmental scientists have stated that perhaps young adults between the ages of 18-21 share these same qualities as well (Casey et al., 2017). The court has relied on these findings in particular, as highlighted in three recent prominent cases.

In *Roper v. Simmons* (2005) the Supreme Court acknowledged developmental psychology in their reasoning for the first time and banned the death penalty for youth under the age of 18. In *Graham v. Florida* (2010) the Supreme Court banned the possibility of life without parole for juveniles who commit non-homicide offenses. Last, in *Miller v. Alabama* (2012) the Supreme Court ruled that the verdict of life without the possibility of parole for juveniles who

are charged with a homicide offense should be considered on an individual basis. All three of these Supreme Court decisions have leaned on the notion that adolescents are categorically different than adults and are therefore less “deserving” of punishment. Although this model can appear to be based on science (and many believe it is based on science), Fondacaro (2014) argues that the court has turned to a form of “folk psychology” instead. In fact, he argues that using development and categorical differences as a mitigating factor for juvenile offenders undermines the credibility of science, and might actually be doing more harm than good for incarcerated adults.

Fondacaro (2014) writes that retribution is still relied upon in the juvenile diminished responsibility model, and as we have repeatedly addressed, retribution itself is highly problematic, as it is grounded in the notion of free will and autonomy; a view of crime largely unsupported in the scientific community. Instead, most in the scientific community have embraced a biopsychosocial approach to understanding and treating offenders. Essentially, although the diminished responsibility model has helped juveniles gain treatment and receive more lenient punishments, leaning on a categorical and diminished capacity model is not supported by empirical evidence, and legitimizes the way in which the justice system treats adults. A suggested approach instead is to embrace the biopsychosocial model for both juveniles and adults by focusing less on free will and autonomy and more on contextual factors (Fondacaro, 2014). The present study aims to test this across juvenile and adult categories.

Study Overview

To this end, we sought to extend and add to prior research by developing and empirically testing a psychoeducational intervention consisting of teaching participants about the

biopsychosocial effects of childhood trauma on behavior and measuring beliefs about free will and justifications for punishment for both juvenile and adult offenders. We did this by assigning one group of participants to watch a video discussing the biopsychosocial effects of childhood trauma on behavior and assigning a second group of participants to watch a neutral video of similar length, subsequently measuring their beliefs in free will. We also provided half of the participants in each group a vignette of a juvenile who committed a crime and half a vignette of an adult who committed a crime. We asked participants to determine an appropriate sentence after the offender had been rehabilitated, and to answer questions about culpability and justifications for punishment.

We tested five hypotheses. First, regarding the effect of knowledge of biopsychosocial effects of trauma on beliefs in free will, we predicted that learning of biopsychosocial effects of trauma will decrease beliefs in free will. Second, regarding the effect of knowledge of biopsychosocial effects on trauma on support for punishment, we predicted that learning of biopsychosocial effects of trauma will result in less severity of punishment and support for shorter prison sentences following rehabilitation. Third, regarding the effect of knowledge of biopsychosocial effects on trauma on justifications for punishment, we predicted that learning of biopsychosocial effects of trauma will decrease support for retribution and increase support for consequentialism. Fourth, we hypothesized that perceived culpability would mediate the effect of learning of biopsychosocial effects of trauma on punishment severity and justifications for punishment. Finally, we predicted the same pattern of relations across age categories but expected the relations to be stronger for juveniles, given that perceived immaturity may be seen as an additional culpability dampening factor.

Method

Participants

Our sample included 352 adults ($M_{age}=36.36$ years, $SD_{age}=10.96$ years; male 54.3%, female 45.2%, non-binary .6%; White/European American 82.1%, Black/African-American 11.1%, Asian/Asian-American 6.5%, Other 1.7%, American Indian or Alaska Native .6%, Native Hawaiian or Pacific-Islander .3%; 12.5% Hispanic/Latinx) who were recruited through Amazon's Mechanical Turk (MTurk) in exchange for \$1.00 (See Appendix A). Consistent with past studies, power analysis using G*Power assuming a small to medium effect size indicated that we needed at least 330 study participants to have sufficient power to detect significant effects. 14 additional participants were excluded from subsequent analyses because they either left the majority of the questions blank, or they failed the manipulation check.

Of our sample, political orientations ranged from very liberal (17.6%) to very conservative (13.9%), with the majority as either somewhat liberal (25%) or moderate (24.4%). Educational background ranged from less than a high school degree (.9%) to a professional degree (1.7%), with the majority either having some college or an associate's degree (26.5%) or a bachelor's degree (42%). Regarding having contact with the criminal justice system, 9.1% disclosed that they had a criminal record, 10.5% disclosed that they had been incarcerated, and 22.4% disclosed that they had a family member who had been incarcerated. Additionally, 27.3% disclosed that they had been the victim of a crime and 20.7% disclosed that they had a family member who had been the victim of a crime.

Measures

Anti- Free Will Manipulation. Participants were asked to view an educational video lasting approximately four minutes in length which explained ways in which experiencing trauma can involuntarily affect behavior. Specifically, the video discussed the fight-flight-freeze mechanism, and the effects of long term activation of the HPA axis on behavior. Further, the video discussed trauma's potential to affect emotion regulation, attachment, development of the self, peer relationships, and psychopathology. We used strongly worded primes that contained multiple threats to free will and sought to visually and verbally show *how* science undermines free will, as per the suggestions of past researchers. However, crucially, we did not mention the words free will in the video, therefore leaving interpretation to participants. (see Appendix B)

Neutral Control. Participants were asked to view an educational video lasting approximately four minutes in length which explained a simple card trick. The video was of similar length and of similar difficulty to our manipulation video, and the topic was unrelated to our variables in question. (see Appendix C)

Crime Vignettes. Participants were presented with a passage describing an individual who had been convicted of a moderately violent offense. A moderately violent offense was used in order to control for a potential floor effect that a non-violent offense would cause, or a ceiling effect that a highly violent offense would cause. It was mentioned that the offender experienced childhood trauma. Whether the offender was a juvenile or an adult varied across age categories. (See Appendix D)

Free Will Subscale. Participants completed the seven item free will subscale within the longer FAD-Plus Scale (FAD+; Paulhus & Carey, 2011; $\alpha = .88$). This subscale has been used

repeatedly by researchers measuring people's beliefs in free will (Shariff et al., 2014; Koppel & Fondacaro, 2018). Participants indicated their level of agreement (1 = *strongly disagree*, 5 = *strongly agree*) with items such as: "Strength of mind can always overcome the body's desires." In the current study, the internal consistency was $\alpha = .87$. (see Appendix E)

Culpability Scale. To measure perceived culpability of the hypothetical offender, participants completed the Culpability Judgements Questionnaire (Graham & Lowery, 2004; $\alpha = .51$). They indicated their level of agreement with four statements characteristic of culpability, such as, "How much do you think the defendant is responsible (blameworthy) for the alleged crime?" In the current study, the internal consistency was $\alpha = .81$. (See Appendix F)

Retribution Scale. To measure support for general retributive beliefs, participants indicated their level of agreement or disagreement with five statements characteristic of retributive punishment, such as "The more serious the offense is, the more a person deserves to be punished." The scale was adapted from Cullen, Cullen and Wozniak (1988) and has been used in several studies measuring people's support for retributive punishment (O'Toole and Fondacaro, 2015; Koppel and Fondacaro, 2018). In the current study, the internal consistency was $\alpha = .83$. (See Appendix G)

Consequentialism Scale. To measure support for general consequentialism beliefs, participants indicated their level of agreement or disagreement with two statements characteristic of consequentialist punishment, such as, "Relative to giving this offender what he deserves in terms of punishment, how important is it to you that the criminal-justice system rehabilitate him?" Although a valid measure of consequentialist punishment has not been widely recognized,

this scale was created by O'Toole and Fondacaro (2015) and has been used by Koppel and Fondacaro (2018). In the current study, the internal consistency was $\alpha = .80$. (See Appendix H)

Punishment Severity. To measure support for retributive punishment, participants indicated how severely they thought the offender should be punished (1 = *not at all severely*, 7 = *very severely*). (See Appendix I)

Sentence Length. In another method to measure support for retributive punishment, participants recommended the punishment that an offender should receive following a 2-year, nearly 100%-effective, rehabilitation treatment. Modeled after Shariff et al. (2014), the notion that the offender had been rehabilitated was used in order to isolate participants' desire for punishment as retribution. Options ranged from no incarceration post-treatment to seven years of incarceration post-treatment. We stopped at seven years, as that is the maximum sentence for the moderately violent offense we chose. (see Appendix J)

Descriptive Measures. Data on each participant's age, gender, ethnicity, political affiliation, educational background, and legal system involvement were collected through a Qualtrics survey. (see Appendix K)

Procedure

Participants were recruited through Amazon Mechanical Turk (MTurk). The advertisement stated that the study would include watching a short educational video (approximately 4 minutes in length), and then reading a vignette of a crime, answering a series of questions, and completing a demographics questionnaire. We noted that participation in the study would take approximately 15 minutes and that they would be compensated \$1.00. Qualifications included currently residing in the United States, being above the age of 18, and being proficient

in English. If they met these requirements, participants were eligible to participate. We did not exclude those with criminal justice involvement.

Participants were randomly assigned to watch one of two videos: one explaining the biopsychosocial influences of trauma on human behavior, and the other, of similar length, discussing a card trick (a neutral topic unrelated to trauma). Participants were also randomly assigned to read one of two vignettes: a juvenile who engaged in a moderately violent criminal offense and an adult who engaged in the same offense. Following the vignette, participants completed the seven-item free will subscale of the Free Will and Determinism Plus (“FAD-plus”) scale, a four-item scale on culpability, a five-item scale on retribution, and a two-item scale on consequentialism. They were also asked how severely they thought the offender should be punished, and were asked to recommend the length of the prison sentence (if any) that this offender should serve following a 2-year, nearly 100%-effective, rehabilitation treatment; any sentence beyond rehabilitation was taken as a degree of retribution. Finally, they completed a demographics questionnaire.

Results

Free Will Beliefs.

A 2-way ANOVA was conducted to examine if free will beliefs varied as a function of the experimental manipulation and the defendant’s age. As predicted, trauma informed psychoeducation was negatively related to free will beliefs, such that individuals who watched the trauma video had lower average free will scores on the FAD+ compared to individuals who watched the control video $F(1, 346) = 8.962, p = .003$ ($M = 3.89, SD = .744$ vs. $M = 4.10, SD = .58$). However, the effect of defendant age on free will beliefs was non-significant and there was a

non-significant interaction between trauma informed psychoeducation and defendant age on free will beliefs ($p \geq .238$). (See Figure 1)

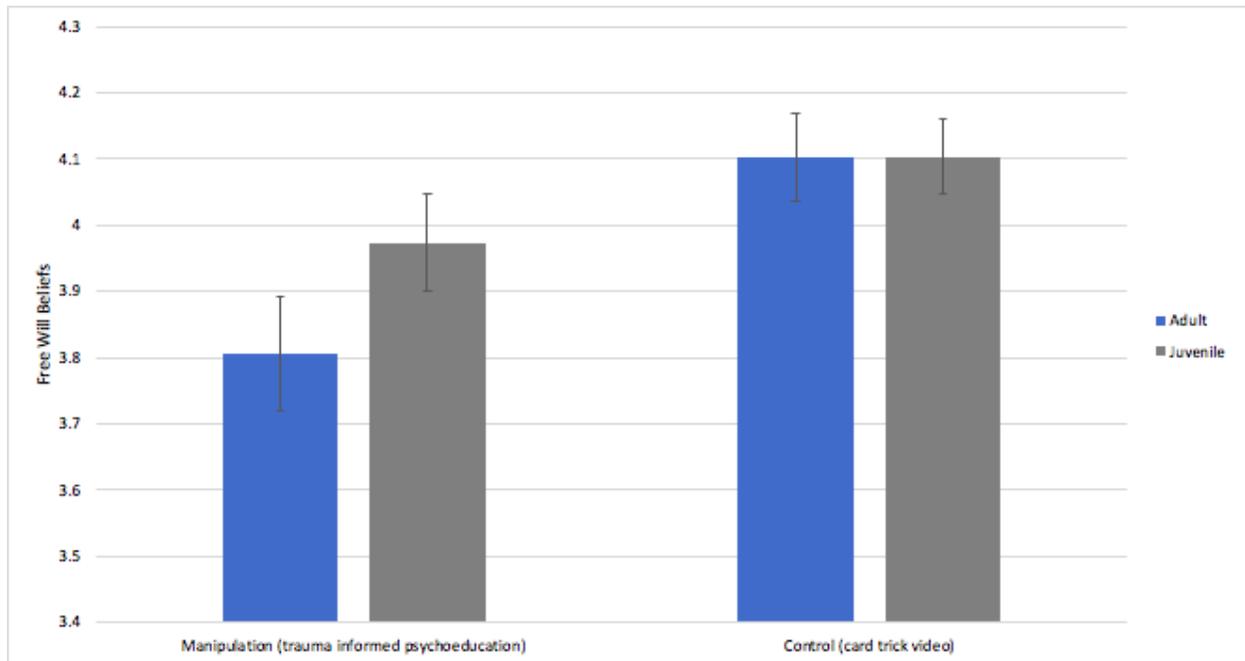


Figure 1. Average free will beliefs by condition. Error bars represent 95% confidence intervals (CIs).

Retributive Beliefs.

A 2-way ANOVA was conducted to examine if general retributive beliefs varied as a function of the experimental manipulation and the defendant's age. Main effects and interactions were non-significant ($p \geq .087$).

Consequentialist Beliefs.

A 2-way ANOVA was conducted to examine if consequentialist beliefs varied as a function of the experimental manipulation and the defendant's age. Defendant age was positively related to consequentialist beliefs, such that individuals who read of a juvenile offender had

higher average consequentialist scores compared to individuals who read of an adult offender $F(1, 360)=5.296, p=.022$ ($M=5.66, SD=1.14$ vs. $M=5.38, SD=1.19$). The effect of the trauma informed psychoeducation was non-significant and there was a non-significant interaction ($p \geq .38$).

Punishment Severity.

A 2-way ANOVA was conducted to examine if punishment severity varied as a function of the experimental manipulation and the defendant's age. Main effects and interactions were non-significant ($p \geq .279$).

Sentence Length.

A 2-way ANOVA was conducted to examine if sentence length varied as a function of the experimental manipulation and the defendant's age. The notion that the offender had been rehabilitated was used in order to isolate participants' desire for punishment as retribution; any sentence beyond rehabilitation was taken as a degree of retribution. Main effects and interactions were non-significant ($p \geq .152$).

A Proposed Mechanism: Perceived Culpability as a Mediator.

We examined whether perceived culpability mediated the effects of the trauma informed psychoeducation on general retributive beliefs, general consequentialist beliefs, and punishment severity. A multiple mediation path model was our proposed mechanism, such that trauma informed psychoeducation effects free will beliefs which effects culpability which leads to changes in measures of general retributive beliefs, general consequentialist beliefs, and punishment. Since our previously run ANOVA showed that trauma informed psychoeducation had a main effect on free will beliefs ($p=.003$), we were justified to run a simpler mediation

model (i.e.: trauma informed psychoeducation effects culpability which leads to changes in measures of general retributive beliefs, general consequentialist beliefs, and punishment). To test this prediction model, we used PROCESS (Montoya & Hayes, 2017) with 20,000 bootstrapped samples. We ran four separate mediations, with general retributive beliefs, general consequentialist beliefs, sentence length, and punishment severity as our outcome variables (Y). For each, trauma informed psychoeducation was entered as a predictor variable (X) and perceived culpability was entered as the mediator.

Results showed that perceived culpability had an indirect effect on the relations between trauma informed psychoeducation and retribution in our hypothesized direction [-.3106, -.0339] (see Figure 2) and had an indirect effect on the relations between trauma informed psychoeducation and punishment severity in our hypothesized direction [-.3117, -.0327] (see Figure 3). Perceived culpability had an indirect effect on the relations between trauma informed psychoeducation and consequentialism, albeit in the opposite direction of our hypothesis [-.1257, -.0013] (see Figure 4). There was a non-significant indirect effect on the relation between trauma informed psychoeducation and sentence length, despite the construct being similar to both punishment severity and retribution (see Montoya & Hayes, 2017 for a discussion of inferring mediation from the presence of a significant indirect effect).

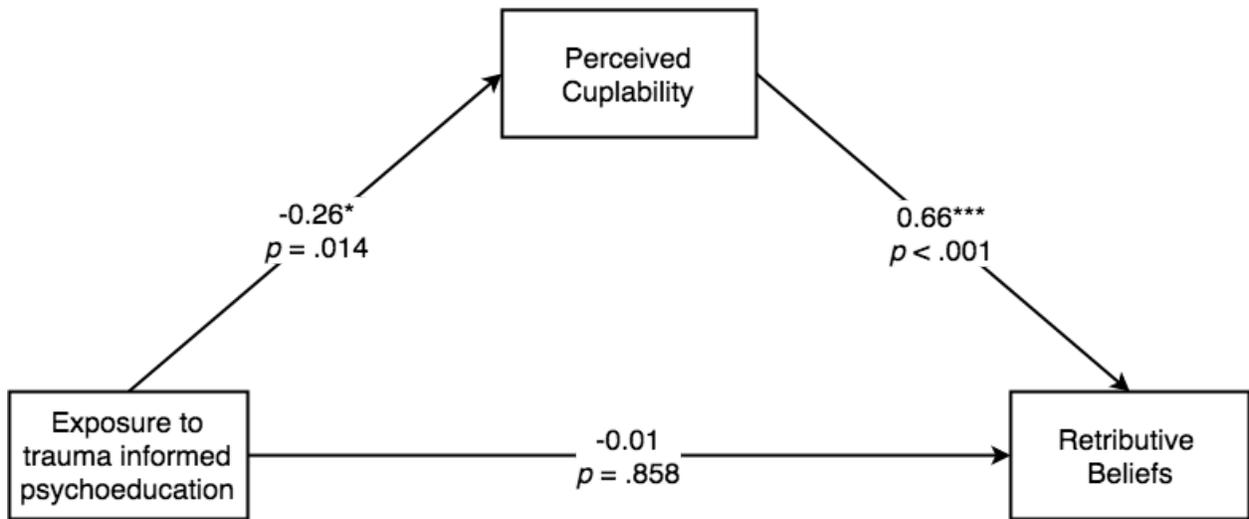


Figure 2. Increase in exposure to trauma informed psychoeducation led to a decrease in perceived culpability; in turn, this led to decreased retributive beliefs.

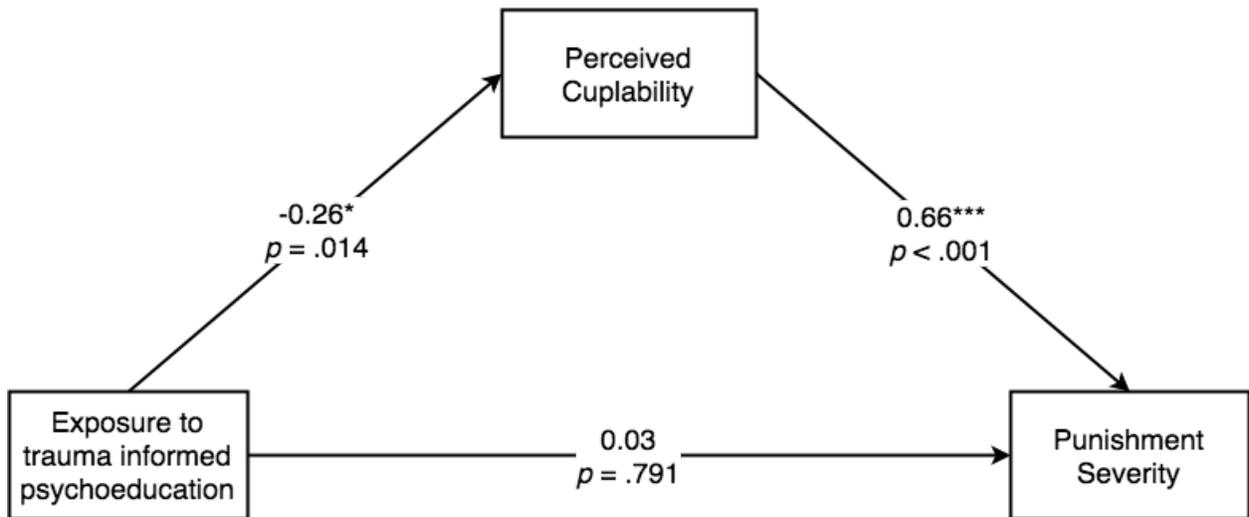


Figure 3. Increase in exposure to trauma informed psychoeducation led to a decrease in perceived culpability; in turn, this led to decreased severity of punishment.

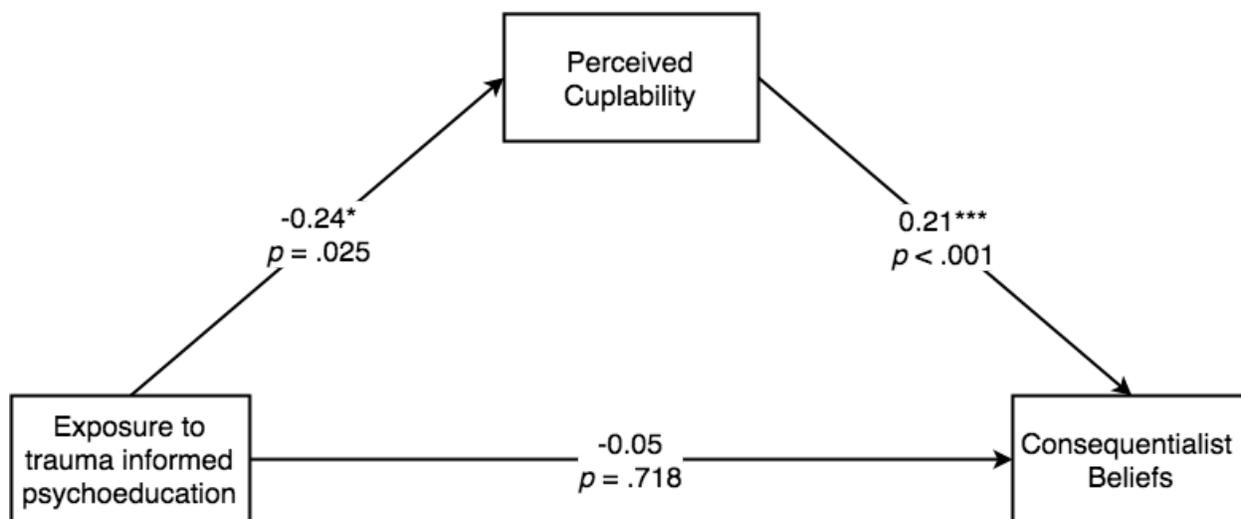


Figure 4. Increase in exposure to trauma informed psychoeducation led to a decrease in perceived culpability; in turn, this led to decreased consequentialist beliefs.

Discussion

Our study suggested that knowledge of biopsychosocial effects of trauma can influence free will beliefs and subsequent perceived culpability for both juvenile and adult offenders. Researchers may not be confined to influencing justifications for punishment through debunking the existence of free will entirely (which prior research has shown to have inconsistent results). Instead, by providing laypeople with information on internal and external factors influencing behavior and not mentioning free will, the strength of their free will beliefs and subsequently the perceived culpability of offenders may be altered. However, our study did not find direct effects of trauma informed psychoeducation on sentence severity, sentence lengths, or justifications for punishment.

More specifically, our study suggested several interpretations. Results showed that free will beliefs can be manipulated by providing individuals with a description of biopsychosocial effects of trauma on criminal behavior. However, the manipulation did not lead to changes in beliefs about punishment or justifications for punishment. Our proposed mechanism lies in perceived culpability as a mediating variable, as mediation analyses showed that perceived culpability had an indirect effect on the relations between trauma informed psychoeducation and retribution, consequentialism, and sentence severity. While mediation analyses on retribution and punishment severity were in our hypothesized direction, consequentialism was in the opposite direction of what we had hypothesized. This finding is consistent with recent research by Koppel and Fondacaro (2018) who noted that one possibility for this finding is that consequentialist punishment may at the same time be viewed as having a retributive bite. The fact that trauma informed psychoeducation and support for consequentialism was mediated by perceived culpability supports this reasoning, as an offender perceived as less culpable was also viewed as being less deserving of punishment—whether that punishment was justified by retribution or consequentialism. Interestingly, with the exception of an effect on consequentialism, the defendant's age also did not have an effect on punishment or justifications for punishment.

Limitations

We acknowledge several limitations in this study. First, there are limitations in this study that are consistent with most online surveys. Mainly, the participant, and the method in which they took the survey, cannot be verified and therefore we cannot know whether they paid attention to the full video, or whether they took the time to answer questions thoughtfully. However, research suggests that internet survey data has good internal consistency, high

test-retest reliability, and provides results similar to those obtained through other methods (Buhrmester, Kwang, Gosling, 2011). Data obtained through MTurk are found to be at least as reliable as those obtained via traditional methods (Buhrmester et al., 2011). Further, we included attention checks, and set a requirement in place so participants were not able to move on in the study until the video had passed three minutes.

Second, we provided participants with only one vignette of a crime, which individuals may have held biases about. Research on motivated cognition shows that if individuals held prior beliefs about the crime, and preferred a particular outcome, they may have been motivated towards particular punishment regardless of our manipulation (Sood, 2013). However, we attempted to mitigate this through using random assignment. Third, it is possible that the initial free will beliefs held by participants influenced their responses and not our manipulation. However, we controlled for this by random assignment as well.

We suggest that future research attempts to replicate our findings, as this was the first study of its kind. Others may look at ways to strengthen our psychoeducation manipulation and note whether direct effects on punishment and justifications for punishment are significant. Specifically, we suggest that types of trauma information, and the structure in which it is presented, be varied. Last, we suggest varying both the type of offense and the intensity of the crime's violence. In conclusion, we have taken the *initial* steps toward the development of a new method by which to shift public perception away from retribution and towards consequentialism; future research is needed to strengthen the method.

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Appendix A

Online Advertisement of the Study on Amazon's Mechanical Turk

Title: Survey about justifications for punishment

Compensation: \$1.00

Description: Watch a short educational video (approximately 4 minutes in length), read a vignette of a crime, answer a series of questions, and complete a demographics questionnaire. This online study should take approximately 15 minutes to complete.

Time Allotted: 1 hour

Qualifications required: Currently living in the United States; Above the age of 18; Proficient in English

Appendix B

Anti-Free Will Manipulation

Video Link: https://www.youtube.com/watch?v=K_nVrNaNHxY&feature=youtu.be

Created by: Rachel Lazar (PI of study)

Music Credits: bensound.com

Transcript:

Many people who commit crimes have experienced childhood trauma. In fact, the proportion of people in jails and prisons who have been victims of childhood trauma compared to the general population is disproportionately high!

Some of the most common traumas that people in prison experienced during childhood are: seeing or hearing someone get badly hurt or killed, being threatened with a weapon, experiencing family violence or divorce, having a family member who was incarcerated.

Can these traumas influence behavior? If so, how? To answer this question, it is helpful to look at what is called the biopsychosocial model of trauma. Research has shown that experiencing trauma can affect people at the biological, the psychological, and the social levels. The combination of these effects can then influence behavior in a very strong way. Let's look at how this works in action.

Let's start by looking at how trauma can influence the brain. The human brain is programmed to assist us when we are exposed to danger. The hypothalamic pituitary adrenal axis (or HPA axis for short) is our central stress response system. When confronted by a threat, an alarm bell goes off in our brain, triggering the HPA axis to release hormones, adrenaline, and cortisol—preparing us for immediate action. Our hearts pump faster, our breathing quickens, our muscles tighten, and we start to sweat. In this hyper-aroused state, we can choose to fight, to flee, or to freeze. Once danger has subsided, a negative feedback system in our brains allows our body to return to a non-aroused state, and we calm down.

However, in cases of prolonged exposure to childhood trauma, children often perceive constant danger ... and as a result, their negative feedback system can become dysregulated. The system can become jammed- causing their bodies to become flooded with hormones and their nervous systems to remain on high alert, constantly anticipating danger even when none is there! This can help explain why some individuals who were abused as children can have extreme and

even violent reactions non-threatening and even trivial stimuli. This is a concrete way that trauma affects biology which in turn can affect behavior.

What about ways trauma can affect the psychology and social world of an individual? One prominent example is emotion regulation— one’s ability to regulate their own emotions and read the emotions of others. Individuals who were abused often have a harder time recognizing, expressing, or understanding emotion. This may make them more likely to detect aggression in others and exhibit more aggression themselves. Researchers have also found that development of self, psychopathology, attachment, and peer relationships can all be negatively affected by childhood trauma- ultimately having the ability to affect behavior.

Overall, childhood trauma can affect people at the biological, psychological, and social levels. This in turn can influence behavior. Like a puppet’s strings, these factors can be thought of as processes outside of one’s control and awareness that can have influence over their behavior.

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Appendix C

Neutral Control

Video Link:

<https://www.youtube.com/watch?v=3nqiAFtvXPY&t=0s&index=18&list=PL1F240EA7DB489D19>

Transcript:

This is the best card trick in the world. We will go ahead and spread the pack out a little bit, have someone pick a card, we'll randomly pick any card, in this case it is the three of clubs. Then we'll go ahead and start to shuffle the pack a little bit, have them tell you when to stop, we'll say stop now, or now, it doesn't matter. We'll go ahead and take this card, three of clubs, place it in the pack, square the deck, and we'll magically move our hand over the deck and we'll say the magic word. Spread the deck out and your card will show itself magically- as you can see there is a blue card now in the deck. We will go ahead and turn that card over and reveal that it is indeed the three of clubs, the card that you picked. We'll turn it back over, and, if you didn't really get that, I'll go ahead and show it to you again in slow motion. Again, we will shuffle the deck, you say when to stop, let's say they say stop now, we've got the five of diamonds, place it on top, say the magic word, spread the cards out, and again we will hopefully see your card reveal itself, as a blue card. There doesn't seem to be a blue card in here, well there is this one here- we'll turn that over and it is the five of diamonds.

This is the reveal to the best card trick in the world. This is a normal deck of red cards. Except for the very bottom card which is blue, in this case it is the five of diamonds. You go through the regular red pack and find the other five of diamonds, so you have two five of diamonds. You put the red five of diamonds on the bottom, and you take the blue five of diamonds and you put it on the very bottom. Next you spread the cards out, try not to show the very bottom card, which is the blue one. Have them pick a card, let's say they pick this one, in this case it is the eight of hearts, pick the deck.

Next thing you'll do is called hindu shuffle, it looks like you are mixing the cards up, but in reality, you are just taking cards off the top of the deck, leaving the bottom intact- still have the blue five of diamonds and the red five of diamonds there. You continue to shuffle until they tell you to stop. Let's say they say stop now, when they tell you to stop you take their card, place it in the middle of the pack. You still have your five of diamonds right here. Place the five of diamonds on top of the eight of hearts, wave your hand over the deck, say the magic word, and spread the pack out. When you spread the pack out their card will magically reveal itself and there it is, this blue card. Take the pack out and this is where it looks like you had turned their card over, the five of diamonds, but what you actually do is grab in such a way that you turn two cards over at the same time, making it look like you are turning one card over, and when you turn those two over you are actually turning the card they picked, again, you reach down and turn over two cards, putting the blue back on top, so it looks like you turned over their card, the eight of hearts, but in reality, you weren't, you were turning over the five of diamonds, so you take that out, they think that that's your card, the eight of hearts. You tell them, let's do the trick again in slow motion. You pick up this pack and now, you have the original red five of diamonds still here, and put it on the bottom. Tell them again I'm gonna shuffle the pack, slowly, hindu shuffle, mixing up the cards but you still have the red five of diamonds on bottom. They tell you to stop,

you tell them ok, your card is the five of diamonds, I'm gonna place it down on the pack, wave my hand over the deck, spread the cards out, I'm gonna look for your card, it should show itself, but it doesn't seem to be coming up, there's no blue card, well actually there is a blue card right here. Turn it over, and it is the five of diamonds.

Appendix D

Crime Vignette: Juvenile

Please read the following story:

A fight broke out between a teenage boy and an adult man. The teen grabbed the man by the shirt, punched him in the face, and threw him on the ground. The teen proceeded to kick the man on the floor until he became unconscious. The police were called and charged the teen with assault in the second degree.

Upon psychological testing, it is brought to the court's attention that the teenage defendant was physically abused by his stepfather for much of his childhood. His mother was also in and out of prison throughout his childhood. Whenever the defendant's mother was released and came home, the defendant's stepfather would beat her, as the defendant often watched. The defendant describes being afraid that his mother would be killed every time his stepfather beat her.

Crime Vignette: Adult

Please read the following story:

A fight broke out between two adult men. One man grabbed another by the shirt, punched him in the face, and threw him on the ground. The standing man proceeded to kick the hurt man on the floor until he became unconscious. The police were called and charged the man with assault in the second degree.

Upon psychological testing, it is brought to the court's attention that the defendant was physically abused by his stepfather for much of his childhood. His mother was also in and out of prison throughout his childhood. Whenever the defendant's mother was released and came home, the defendant's stepfather would beat her, as the defendant often watched. The defendant describes being afraid that his mother would be killed every time his stepfather beat her.

Appendix E

Free Will Subscale of the FAD-Plus

Instructions: For each statement below, choose a number from 1 to 5 to indicate how much you agree or disagree.

- 1: People have complete control over the decisions they make. (5-point end labeled: 1=Strongly Disagree; 5=Strongly Agree)
- 2: People must take full responsibility for any bad choices they make. (5-point end labeled: 1=Strongly Disagree; 5=Strongly Agree)
- 3: People can overcome any obstacles if they truly want to. (5-point end labeled: 1=Strongly Disagree; 5=Strongly Agree)
- 4: Criminals are totally responsible for the bad things they do. (5-point end labeled: 1=Strongly Disagree; 5=Strongly Agree)
- 5: People have complete free will. (5-point end labeled: 1=Strongly Disagree; 5=Strongly Agree)
- 6: People are always at fault for their bad behavior. (5-point end labeled: 1=Strongly Disagree; 5=Strongly Agree)
- 7: Strength of mind can always overcome the body's desires. (5-point end labeled: 1=Strongly Disagree; 5=Strongly Agree)

Appendix F

Culpability Scale

Please rate the following questions about the culpability of the defendant.

- 1: How much do you think a crime was actually committed? (7-point end labeled: Very Unlikely=1, Very Likely=7)
- 2: How much do you think the defendant was aware of that his actions were a criminal act for which he could be prosecuted? (7-point end labeled: Very Unlikely=1, Very Likely=7)
- 3: How much do you think the defendant intended to commit a crime? (7-point end labeled: Very Unlikely=1, Very Likely=7)
- 4: How much do you think the defendant is responsible (blameworthy) for the alleged crime? (7-point end labeled: Very Unlikely=1, Very Likely=7)

Appendix G

Retribution Scale

Instructions: For each statement below, choose a number from 1 to 7 to indicate how much you agree or disagree.

- 1: The person described above deserves to be punished because he harmed society with his crime. (7-point end labeled: Strongly Disagree=1, Strongly Agree=7)
- 2: The amount of punishment that the person described above receives should be equal to the harm caused. (7-point end labeled: Strongly Disagree=1, Strongly Agree=7)
- 3: The amount of harm that this crime caused—and not the person described above’s background or why he committed the crime—should be the major factor that determines how long of a sentence he receives. (7-point end labeled: Strongly Disagree=1, Strongly Agree=7)
- 4: The more serious the offense is, the more a person deserves to be punished. (7-point end labeled: Strongly Disagree=1, Strongly Agree=7)
- 5: The primary purpose of our criminal-justice system is to pay back offenders for what they’ve done with punishment. (7-point end labeled: Strongly Disagree=1, Strongly Agree=7)

Appendix H

Consequentialism Scale

Instructions: For each statement below, choose a number from 1 to 7.

- 1: Relative to giving this offender what he deserves in terms of punishment, How important is it to you that the criminal-justice system rehabilitate him? (7-point end labeled: 1=Much less important; 7=Much more important).
- 2: Relative to giving this offender what he deserves in terms of punishment, How important is it to you that the criminal-justice system reduce his risk for committing another crime in the future? (7-point end labeled: 1=Much less important; 7=Much more important).

Appendix I

Sentence Severity

How severely do you think the offender should be punished? (7-point end labeled: Not at all severely=1, Very severely=7)

Appendix J

Retributive Punishment

Two years have now passed, and this offender completed a 2-year, nearly 100%-effective, rehabilitation program. Both the prosecution and defense have agreed that the rehabilitation will prevent recidivism (meaning, it is unlikely that the defendant will commit another crime in the future). Additionally, the prosecution and defense have agreed that any further detention after rehabilitation would offer no additional deterrence to other potential criminals (meaning, placing the defendant in prison would not discourage others from committing crimes). What punishment (if any) would you suggest this individual serve now- following his rehabilitation?

- No imprisonment post-treatment
- 1 year of imprisonment post-treatment
- 2 years of imprisonment post-treatment
- 3 years of imprisonment post-treatment
- 4 years of imprisonment post-treatment
- 5 years of imprisonment post-treatment
- 6 years of imprisonment post-treatment
- 7 years of imprisonment post-treatment

Appendix K

Demographic Questionnaire

What is your age? (text response)

What is your gender?

- Male
- Female
- Non-binary
- Other (text response)
- Prefer not to answer

Using the following racial categories, how would you describe your race? Please select all that apply.

- White/European-American
- Black/African-American
- American Indian or Alaska Native
- Asian/Asian-American
- Native Hawaiian or Pacific Islander
- Other (text response)
- Prefer not to answer

How would you describe your ethnicity?

- Hispanic/Latino
- Not Hispanic/Latino

How would you describe your political orientation?

- Very Liberal
- Somewhat Liberal
- Moderate
- Somewhat Conservative
- Very Conservative
- Other (text response)
- Prefer not to answer

What is the highest level of school you have completed or the highest degree you have received?

- Less than high school degree
- High school graduate (high school diploma or equivalent including GED)
- Some college but no degree
- Associate degree in college (2-year)
- Bachelor's degree in college (4-year)
- Master's degree
- Doctoral degree
- Professional degree (JD, MD)
- Prefer not to answer

We are now going to ask you some questions about your experience with the criminal justice system. As a reminder, all your responses are confidential and your name will not be associated with these answers.

Do you have a criminal record?

- Yes (If yes: Were you convicted of a misdemeanor or a felony?)
- No
- I'd rather not say

Have you ever been incarcerated?

- Yes (If yes: For how long were you incarcerated?)
- No
- I'd rather not say

Have you had a family member who has been incarcerated?

- Yes (If yes: For how long was your family member incarcerated for?)
- No
- I'd rather not say

Have you been the victim of a crime?

- Yes (If yes: What crime were you a victim of?)
- No
- I'd rather not say

Has a family member been the victim of a crime?

- Yes (If yes: What was the crime that your family member was a victim of?)
- No
- I'd rather not say