

2016

The Effects of Cognitive Load and Stereotyped Groups on Punitiveness

Daniel Schmidt

Claremont McKenna College

Recommended Citation

Schmidt, Daniel, "The Effects of Cognitive Load and Stereotyped Groups on Punitiveness" (2016). *CMC Senior Theses*. Paper 1438.
http://scholarship.claremont.edu/cmc_theses/1438

This Open Access Senior Thesis is brought to you by Scholarship@Claremont. It has been accepted for inclusion in this collection by an authorized administrator. For more information, please contact scholarship@cuc.claremont.edu.

Claremont McKenna College

The Effects of Cognitive Load and Stereotyped Groups on Punitiveness

submitted to
Professor Piercarlo Valdesolo

by
Daniel J. Schmidt

for
Senior Thesis
Spring 2016
April 25th, 2016

Table of Contents

Title Page	1
Abstract	2
Introduction.....	3
Bias in Punitive Decision Making.....	5
The Dual Process Model and Moral Judgment	6
Cognitive Load and the Dual Process Model.....	9
Cognitive Load and Heuristics	9
Cognitive Load and the Use of Stereotypes	13
Impact of Stereotyped Group on Punitiveness	17
The Stereotype Content Model	18
The Present Study.....	23
Study 1	25
Method	25
Results	29
Discussion	31
Study 2	33
Method	33
Results	36
Discussion	38
General Discussion	39
Methodological Issues	39
Theoretical Considerations.....	42
References.....	45
Appendices.....	52

The Effects of Cognitive Load and Stereotyped Groups on Punitiveness

Daniel J. Schmidt

Claremont McKenna College

Abstract

The current study explores the interactions of cognitive load and stereotypes on emotions felt toward stereotyped groups and decisions of punitiveness for a crime. Dual processing models suggest that cognitive load can decrease deliberation and increase intuitive and emotional judgments. The Stereotype Content Model suggests that different stereotyped groups evoke different emotions. The current study tested the hypothesis that individuals under high cognitive load will be more likely to rely on stereotypical information and associated emotions when making decisions on punishment for a crime. Study 1 had 205 participants from Amazon's Mechanical Turk website complete an online survey in which they read a vignette about an elderly man, a man who receives welfare checks, or a neutrally described man, who commits a "hit and run" crime. Half of the participants were then put under cognitive load, and all participants completed questions on punitiveness for the character's crime, emotions felt towards the character, and perceptions of warmth and competence in the character. Study 2 repeated the manipulations and measures of study 1 with a few changes and in a college lab setting. Results were inconclusive in both studies and the null hypothesis was retained. Methodological and theoretical reasons for these results are discussed.

The Effects of Cognitive Load and Stereotyped Groups on Punitiveness

Introduction

Punitive decisions for marginalized out-groups seem to be harsher in America's legal system, despite the court's having a commitment to unbiased administration of law. For example, white Jurors seem to assign higher guilt ratings to black defendants than white defendants in the absence of jury instructions, and the death sentence is applied more often when the victim of the crime is white (Sommers 2003). This phenomenon raises the question, what controllable variables increase or decrease biased decisions on punitiveness and moral judgment? How can we identify factors that increase bias in legal or social settings?

The present research will seek to explore this problem by analyzing the relationships of cognitive load, stereotyped groups, and punitiveness. Cognitive load will be examined within the framework of a dual processing model, as a variable that encourages the use of intuitive judgments by inhibiting the use of cognitive resources needed for controlled reasoning. Next, the structure of stereotypes will be analyzed through the stereotype content model in order to theorize what effect different stereotypes will have on decisions of punitiveness. Finally, this study will attempt to experimentally test whether or not an increase in cognitive load increases the amount an individual uses stereotypical information to make decisions on punitiveness. This research thus hopes to identify one potential cause of human bias in moral and punitive decision making.

Cognitive load is defined as a measure of the total amount of effort utilized by an individual's working memory (Salkind, 2008). High cognitive load could interfere with

an individual's ability to make deliberate decisions through the absorption of cognitive resources. Thus, cognitive load may indirectly encourage the use of more intuitive judgments that do not require high levels of cognitive resources (Petty et al. 1986). One kind of intuitive decision made by individuals depends on the use of stereotypes. Stereotypes are often mixed sets of perceived traits that an individual associates with a group, and are often used to make quick judgments about an individual (Fiske et al. 2002, Macrae et al. 1994). Thus, higher levels of cognitive load could increase the use of stereotypical information when making decisions. This study will investigate whether or not increased cognitive load causes individuals to rely more heavily on stereotypical information when considering punishment, and thus changes the amount of punishment assigned to different stereotyped groups for the same crime. This hypothesis could have serious implications for psychological research and applications in legal, school, and social settings.

This research will help further our understanding of how cognitive processes interact with moral and punitive decision making models. Connecting research on punitiveness, cognitive load, and stereotypical information will provide an illustration of how several theoretical models interact within individual cognition in a single instance. This theoretical bridge will better enable the exploration of interactions between variables previously isolated within separate veins of research such as various forms of heuristics, influences on dual processes, and differed paradigms of moral judgment.

This study's implications could also affect how we seek to mitigate bias in educational, legal, and social environments. Common classroom stressors and distractions could be increasing the amount students apply heuristic judgments to

coursework, and teachers under high stress could be more likely to show unfair discipline when controlling the class. Juries under high cognitive load could be more likely to make decisions of guilt or capital punishment based on superfluous information. Individuals could be less likely to marginalize social out-groups if their cognitive load is reduced. The ability to reduce biased decisions would be invaluable in education, law, and everyday life, as we seek to uphold critical thinking in the classroom, fairness in the courts, and understanding between social groups.

Relevant Literature

Bias in Punitive Decision Making.

Several studies have demonstrated that bias is present in decisions of punitiveness both in research settings and real courts of law. However, its presence can be often difficult to detect. For example, judgments of guilt by white mock jurors do not seem to be affected by the race of the defendant if race issues in a case are easily salient. This could be because current American society upholds the values of egalitarianism, and individuals self-regulate personal biases when race is made obvious. However, bias among white jurors against black defendants becomes demonstrable in more ambiguous cases where the issue of race is not so prevalent (Sommers & Ellsworth 2000). Similar results were replicated by Sommers & Ellsworth (2001) who found that white jurors convicted, and suggested longer prison sentences for black defendants at a higher rate than white defendants when issues of race were not made salient. Older studies such as Foley & Chamblin (1982) and Sweeney & Haney (1992) also support this finding, suggesting that whites are more likely to vote to convict black defendants, as well as suggest higher prison times. These studies suggest that although people may be culturally

averse to making decisions of punitiveness based on extraneous factors such as race, bias still exists in legal and punitive decision making.

The Dual Process Model and Moral Judgment.

In order to address the current research questions it is imperative to understand under what conditions humans are more likely to make biased decisions. The Elaboration Likelihood Model proposed by Richard Petty was the first major theoretical framework for a dual processing model. Petty's book focused on when individuals were likely to be persuaded by a given argument, and found that humans tend to judge correctness by two unique "routes," namely, the central route and the peripheral route. The central route, refers to deliberative cognitive processing, and is likely to be influenced by the quality of the argument. Conversely, the peripheral route refers to intuitive judgments that tend to be influenced by "peripheral cues" such as positive or negative affect, attractiveness, or the number of arguments present. Consequently, he argued that biased decisions were more likely to happen when individuals were using the peripheral route. But what determines which route an individual will use?

Petty argued that individuals are more likely to be convinced by a logically sound argument when they have the time, responsibility, motivation, and cognitive resources to consider it thoroughly. Conversely, when an individual does not have time, responsibility, motivation, or cognitive resources, he or she will be more likely to use the peripheral route to form attitudes on the subject. This implies in general that when cognitive resources are applied an individual will process information centrally, however when cognitive resources are not applied decisions are often made through extraneous

variables (Petty et al. 1986). These two “routes” can be thought of as systems of mental processing that have continued to be elaborated upon in recent literature.

The dual processing model was explored by Morewedge and Kahneman who presented a dual-system model of reasoning consisting of system 1 and system 2 processing. Similar to Petty’s model, this study defines system 1 as an automatic operational reasoning that generates intuitive judgments, while system 2 is a conscious and controlled system that makes reason based judgments. However, this study further elaborated on system 1, identifying it with “associative memory,” and identifying three distinct features of the system that contribute to quick intuitive judgments. First, system 1 processing prefers stimulus with associative coherence, or a clear and “self-reinforcing pattern of reciprocal activation in associative memory” (Morewedge & Kahneman, (2010). This means that humans consistently refer to contextual memories, information, and emotions in order to better interpret the present situation, so we may associate a hut with “small” and an eagle with “large,” despite the clear difference in size. Next, system 1 processing relies on attribute substitution, which means that automatic comparisons of many variables take place when comparing two objects. For example, people that are attempting to judge how kind a person is may automatically make judgments of similar characteristics, such as generosity. Finally, system 1 processing relies on processing fluency, or the ease of which an idea can be considered. For example, an individual asked to list 6 times they were assertive may believe they are more assertive than an individual who is asked to list 12 times they were assertive. These three mechanisms produce useful intuitions very quickly, but allow for factual inaccuracies. The dual processing model proposes that biased judgments and judgment errors seem to occur when system 1 makes

a quick associative judgment about a stimulus and system 2 fails to correct it (Morewedge & Kahneman, 2010).

Dual processing models have provided insights to the biases observed in punitive judgments. Humans may have evolutionarily developed multiple moral and punitive heuristics that enable individuals to quickly assign blame and punishment (Cosmides & Tooby 2006). This concept is reinforced by research by Haidt (2001) who found individuals often make moral decisions without rational arguments to defend their reasoning. Haidt (2001) proposed the social intuitionist model for moral decision making, which posits that humans have intuitions about a moral situation, which then causes the judgment, which then encourages reasoning to defend or explain the judgment. The intuitional model of moral decision making has been supported by case studies of individuals suffering brain trauma to emotional processing centers, as these individuals showed difficulty with moral and social decision making despite seemingly unharmed IQs or cognitive processing. Furthermore, neuroimaging studies correlating activity in emotional processing centers with moral judgments also provide support for a model of moral decision making driven primarily by intuition (Greene & Haidt 2002).

Pursuing the role intuition often plays in moral judgments, several studies have shown people will use different processing systems to process moral decisions in different contexts. For example, when individuals have higher levels of cognitive resources, they are more likely to make utilitarian style judgments (Moore et al. 2008) (Greene et al. 2008). Furthermore, if making a moral decision in an environment that is emotionally positive, an individual may perceive negative intuitions about a moral

judgment less, and thus make moral decisions based more on utilitarian factors than emotional responses (Valdesolo & Desteno 2006).

Cognitive Load and the Dual Process Model.

Much of the literature on dual processing models is supported by the manipulation and study of cognitive load. In order to provide evidence for dual processing models, researchers have attempted to differentiate the two types of processing through the manipulation of cognitive load (Evans & Stanovich 2013). As mentioned above, cognitive load is a measure of the total amount of cognitive resources being used by an individual at a given moment (Salkind, 2008). Because system 2 processing heavily relies on cognitive resources, an increase in cognitive load would theoretically inhibit system 2 processing while leaving system 1 processing relatively able to function. Evans & Curtis-Holmes (2005) for example, found that belief bias increases under additional cognitive load due to time pressure while logical accuracy decreased. The researchers argued that this is evidence of a variable affecting one kind of processing while leaving the other intact. This study's findings were also replicated in studies that used a direct manipulation of concurrent working memory load (De Neys, 2006). Manipulations of cognitive load therefore seem to suggest that humans operate within dual processing models. Furthermore, cognitive load is a variable that, when increased, increases the amount of intuitive judgments made by the individual.

Cognitive Load and Heuristics.

There are several common ways in which intuitive judgments and lack of self-regulation lead to errors in judgment, and these "shortcut judgments" are known as heuristics. Framing effects, halo effects, and confirmation bias are all examples of

heuristics that illustrate the dual processing model. Furthermore, preliminary evidence has shown that some of these heuristics increase through manipulations of cognitive load. This further supports the claim that cognitive load is a factor that increases biased decisions in accordance with the dual process model.

Framing effects can be loosely described as the human propensity to make decisions based on the way or wording in which a choice is framed, rather than the choice itself. Tversky and Kahneman (1981) presented the risky choice framing effect, and found that when participants were offered a choice in terms of human lives or money, their decisions could be heavily influenced by superfluous variables such as whether the same options were presented in terms of lives saved or lives lost. This paradigm demonstrated a judgment being influenced not by the numerical values presented but by intuitive associations of words used in the prompt. Framing effects are not limited to decisions of riskiness, and further research has shown them to exist in decisions of attributes of events or objects, or persuasiveness of communications. For example perceptions of beef seem to be more positive when described as “75% lean” than when they are described as “25% fat.” (Levin et al. 1998, Levin and Gaeth 1988). These findings are consistent with the dual process model, as individuals likely associate the word “lean” with traits that are desirable in meat, and the word “fat” with traits that are undesirable, causing a shift in judgment.

Halo effects also illustrate the dual processing model. The halo effect can be generally defined as “the influence of a global evaluation on evaluations of individual attributes of a person” (Nisbett and Wilson, 1977). This implies that people often make global evaluations of a person, which “color” the way they see individual attributes that

may be unrelated. For example, one study had participants view videos of a professor who spoke English with an accent. In one condition the professor was warm and friendly, while in another he was cold and distant. Participants in the first condition rated unrelated factors such as appearance, mannerisms, and accent positively, but found them unappealing in the second condition. When asked later, however, participants seemed unaware that the global judgment had affected perceptions of individual traits; in fact many believed the traits made them dislike the professor as a whole (Nisbett and Wilson 1977). Participants seem to allow judgments of one or more attribute affect judgments of other unrelated attributes in a single individual. This heuristic further demonstrates how individuals rely on associative memory to make judgments about individuals and characteristics in a way that is consistent with the dual processing model.

Confirmation bias is another common heuristic, which refers to the propensity to seek and interpret evidence in a way that confirms a pre-existing attitude, belief, or expectation. Individuals seem to do this in a variety of contexts including scientific and educational fields (Nickerson, 1998). This too illustrates how associative memory is utilized to make intuitive judgments that are not factual. Because the individual realizes the evidence confirms the previously held hypothesis, the new information is conceptually coherent and easily processed. Recent research has shown that this heuristic occurs more frequently under situations of cognitive load. Fischer et al. (2008) found across four studies that participants with high levels of cognitive load demonstrated higher tendencies to prefer confirmatory information. For example, in one study half of the participants were asked to conduct an attentional control task while they read several articles related to politics in the mass media. Half of these articles aligned with

previously held beliefs while half did not. The participants were then asked to rate the credibility and importance of each article. Results indicated that participants under higher levels of cognitive load were more likely to prefer attitude consistent information over non-consistent information. These results seem to support the idea that cognitive load interferes with system 2 processing, therefore increasing reliance on heuristic patterns of thought, and may further the general claim that biased decisions seem to increase under conditions of cognitive load. Additional recent research seems to support this hypothesis specifically for emotionally driven decisions.

A recent study by Schulz et al. (2011) indicates that cognitive load increases judgments motivated by emotions in economic decision making games. This study hypothesized that when individuals play dictator games under high cognitive load, they rely on more emotional and affective systems. The study found that dictators under higher cognitive load were fairer in the allocations of money they gave their partners. Interpreted alone, these results may not support the model the present study has described. However, evidence found by researchers such as Haidt (2001) and van Winden (2007) supports the idea that moral norms and judgments rely on emotions and intuitions rather than cognitions. Considering this perspective, the dictators in Schulz's study seem to be relying on intuitive notions of fairness more when cognitive load is increased. This plausible interpretation complies with the dual processing model, and could provide a further explanation of how individuals make intuitive decisions under high cognitive load.

Finally, Ward & Mann (2000) demonstrated a relationship between cognitive load and self-regulation. Ward found that cognitive load decreased inhibitions about eating, by

presenting “restrained eaters” or participants who normally avoid high calorie foods with high calorie foods in either high cognitive load or low cognitive load conditions. The study found that under high load, “restrained eaters” ate more of the high calorie food. Ward controlled for stress and diminished awareness of the food in a second study, and therefore concluded that the disinhibition was caused by interfering with participant’s ability to consider the consequences of this behavior, resulting in lowered self-regulation (Ward & Mann 2000).

These studies on various heuristics and self-regulation seem to align with the dual processing model, and support the idea that cognitive load is a factor that increases the amount individuals make biased decisions. This additional level of biased decision making could be detrimental in situations such as a legal courtroom, in which decision makers are often subject to stressful environments and emotionally compelling material. Therefore, this study will focus on a specific heuristic commonly found in everyday scenarios as well as legal settings, namely, stereotypes.

Cognitive Load and the Use of Stereotypes.

Similar to the paradigms listed above, stereotypes can be thought of as heuristics in that they are used to efficiently interpret information about an individual while expending low levels of cognitive resources. Some researchers believe humans evolved the use stereotypical information in order to avoid expending the great amount of cognitive resources that would be necessary in order to individuate everyone they came in contact with. This “cognitive miser” framework was supported by Macrae et al. (1994) who found that individuals preserved cognitive resources, measured through a prose monitoring task, when forming impressions of individuals with stereotypical labels, as

opposed to individuals without stereotypical labels. These findings were replicated in two more studies that substituted subliminal priming for labels, and probe reaction tasks for prose monitoring tasks. These robust findings indicate that stereotypes help to conserve mental resources, and therefore may be more closely related to the associative memory processes of system 1 reasoning, rather than conscious and deliberate system 2 reasoning. These findings helped inspire other researchers to further investigate the relationship between stereotypical information and cognitive resources.

Sherman et al. (1998) pursued this relationship by providing evidence for the encoding flexibility model. This model proposes that stereotypes are efficient because they facilitate the processing of both stereotype consistent information and stereotype inconsistent information. Because stereotypes are conceptually fluent, consistent information is easily encoded and understood. Simultaneously, this frees cognitive resources to attend to stereotype inconsistent information, which is less easily understood. Stereotype inconsistent information, however, seems to be less correlated with actual behaviors. This study argues, “The fact that the thoroughly attended to and encoded inconsistent information does not carry the day when judgments are made does not impugn the efficiency of encoding flexibility. What is important is that the unexpected events have been noted and may be bolstered should further inconsistencies arise.” (Sherman et al. 1998). Behaviors could be more consistent with stereotypical information as stereotypes provide a conceptually fluent set of characteristics or attributes about an individual or group, and thus help the individual make sense of consistent information easily. Sherman et al. (1998) supported this idea with its fifth experiment that

demonstrated when participants' cognitive resources were low, they extracted the conceptual meaning of information more when it was consistent with the stereotype.

The interaction between cognitive load and the use of stereotypes was further elaborated on by Gilbert and Hixon (1991) who conducted two studies and found that "cognitive busyness" increased the amount that participants applied stereotypes, but only after the stereotype had been activated. The first study had participants watch a video of either an Asian or a Caucasian female, while having them complete a word fragmentation task either under high or low cognitive load. The word fragmentation task asked participants to complete words with missing letters, several of which could be filled in as words that were consistent with Asian stereotypes. For example, RI_E, could be completed as RICE, and POLI_E could be completed as POLITE. It was hypothesized that participants under cognitive load would complete more stereotypical words. This initial experiment, however, did not find the expected interactions, and the researchers theorized that it was because the participants were subject to high cognitive load when first being exposed to a member of the stereotyped group. This early level of load, they argued, prevented the participants in the stereotyped group condition from activating the stereotype in the first place. The researchers conducted a follow up study to investigate this hypothesis, and found that if the participants were exposed to the Asian female before being put under cognitive load, but were then placed under cognitive load during the word completion task, use of the stereotype increased significantly. This study thus suggests that people rely on stereotypical information more under cognitive load, but only if the stereotype has been allowed to activate first (Gilbert and Hixon 1991). This

evidence further supports the hypothesis that stereotypes are relied on as part of “system 1” processing when cognitive load is high and mental resources are low.

Cognitive load and stereotypes have also been linked in the context of STIs, or spontaneous trait inferences. Wigboldus et al. (2004) described spontaneous trait inferences as the tendency for people to infer a trait about someone when observing their behavior, in spite of the lack of any intentional attempt to make impressions of that person. Uleman & Cunniff (1985) described an example of an STI as follows, “For instance, when you observe someone carrying an elderly woman’s groceries across the street, the trait ‘helpful’ may be spontaneously activated” (as cited in Wigboldus et al. 2004). This study utilized a probe recognition task that measures the amount an individual makes an STI about a character in a short sentence or vignette. Two replicated studies suggested that an increase in cognitive load increased the strength of the STIs made for stereotypical consistent information about a fictional Asian character. These STIs were significantly weaker for stereotype inconsistent information. This too adds to the considerable amount of literature that suggests cognitive load inhibits deliberative thought, and therefore requires individuals to rely on stereotype heuristics to a greater extent.

These three studies provide a strong base of evidence that supports the theoretical relationship between cognitive load and stereotypical information. Across three separate measures stereotypical information seems to affect individuals’ decisions and reactions to a greater extent when their current cognitive load is high. This aligns with a dual processing model in which cognitive load interferes with system 2 processing, which can then not correct for bias as the individual relies on stereotypes, a function of associative

memory. This has problematic implications, as cognitive load could increase the use of judgments based on stereotypical information, and by extension, increase bias in important decisions with punitive and legal consequences.

Impact of Stereotyped Group on Punitiveness.

Human decisions of punishment are not immune to intuitive biases, and several studies suggest that intuitive reactions affect punitive decisions in spite of conflicting explicit attempts to avoid this. For example, there is evidence that punishment decisions in laypersons are often derived from intuitions of “just deserts” from individuals that report making decisions based on reparation or reform goals (Carlsmith et al. 2002). Other studies have found that in-group or out-group status can affect factors such as frequency of capital punishment and average sentencing lengths. First, Sommers (2002) found that “defendants charged with killing a white victim were 4.3 times more likely to receive the death penalty as were defendants convicted of killing a Black victim.” This pattern could be influenced by stereotypical information about white or black groups relied upon by the Jury charged with deciding whether or not capital punishment is in order. Next, Taylor and Hosch (2004) conducted archival research on court decisions from El Paso and Bexar County, Texas and found data suggesting that defendant ethnicity reliably predicted sentence length. More specifically, “Anglo defendants received an average of 30 years in prison, whereas Hispanic defendants received an average sentence of 20 years” (Taylor and Hosch 2004). Finally, there is evidence that religion of the defendant can play a major role in the American court system. Miller et al. (2007) analyzed twenty-five high profile cases and found that defendants who appealed to Christian stereotypes and norms were often treated more leniently than defendants

associated with heavily stereotyped religions such as Islam. These results could have been due to associative processes based on race, rather than the evidence of the court.

Other studies support the claim of bias in the courtroom through the use of experimentally controlled mock trials. Sommers & Elsworth (2001) for example, found that white jurors showed bias against black defendants more than white defendants and assigned them higher ratings of guilt as well as higher prison sentences.

While these studies suggest bias may play a role in everyday punitive decisions, it is unclear how exactly a specific stereotype would increase or decrease punitiveness. In fact, considering the wide variety of stereotypes and their corresponding information schemes, it seems unlikely that the activation a stereotype in general would have any single effect, either increasing or decreasing on decisions of punitiveness.

The Stereotype Content Model.

In order to predict how stereotypical information will affect punitiveness, the present research will refer to the stereotype content model proposed by Fiske et al. (2002). The stereotype content model proposes that all major stereotypes can be placed along a continuum consisting of two dimensions, namely, warmth and competence. This model thus implies that individuals may view stereotyped groups with positive opinions of warmth, but negative opinions of competence, or vice versa. These mixed “clusters” can be formed into four major quadrants, each of which elicits individual emotions from people considering the stereotype.

Some of Fiske’s early research highlighted the idea that stereotypes could be ambivalent in nature, and carry attributions that are both positive and negative. Before publishing her content model, Fiske and Glick (1999) argued that there was evidence for

stereotyped groups that were perceived to be incompetent but warm, as well as competent but not warm. Surveys collected on 17 different out-groups suggested that stereotypes about groups such as traditional women, working women, or Asians were high in attributions of competence but not warmth, (working women, Asians) or vice versa (traditional women) (Fiske & Glick 1999). The implications of this study were worth exploring further, as stereotypes could now be thought to be differentiated along specific characteristics other than positive or negative valence.

In 2002, Fiske published “A model of (often mixed) stereotype content,” outlining the argument that stereotyped groups could be categorized based on perceptions of warmth and competence based on the stereotyped groups’ perceived status and competition. Fiske’s model was supported using several samples of participants that rated an extensive list of stereotyped groups on traits of warmth, competence, perceived status, and perceived competition. The groups were chosen through a pilot study, in which participants were asked to name “types of people” that they thought “society categorizes into groups” (Fiske et al. 2002). The pilot study yielded fourteen groups that were consistent with previous theoretical lists, and the study added nine additional groups for theoretical reasons. The resulting list contained out-groups based on gender, ethnicity, race, class, age, and disability. Examples include rich people, elderly people, Jews, disabled people, poor black people, and feminists.

The first study demonstrated that participants consistently place stereotyped groups in similar clusters related to warmth and competence. The study asked participants to rate these groups along a variety of traits related to warmth, competence, status, and competition. For example, words related to competence included confident,

independent, intelligent, etc. Results indicated that the various stereotyped groups reliably fell into four clusters consisting of high competence low warmth groups (ex. Asians, black professionals, businesswomen), low competence high warmth groups (ex. elderly, blind people), low competence low warmth groups, (ex. welfare recipients, poor blacks), and groups that seemed to show moderate values for both (ex. blue collar workers, southerners).

The next two studies elaborated on the results of study one. The second used another pilot study and stricter inclusion criteria, as only those groups listed in the pilot were included. This study then included a number of in-group stereotyped groups (ex. Christians, women, middle class, and students). Consequently, a five cluster solution was found to be most helpful, with the four previous groups present again, along with a new high competence high warmth in-group cluster. The third study replicated results across 3,203 participants in five states and found similar support for the mixed content hypothesis.

Finally, the fourth study assessed affective reactions to the various stereotyped groups. Using similar methods, participants answered questions about how a given group makes others feel, testing a variety of emotions. Results indicated that each stereotype cluster elicited a unique pattern of emotions, with high competence, low warmth groups eliciting the highest level of envy, low competence high warmth groups eliciting the highest level of pity, and low competence low warmth groups eliciting the highest levels of contempt. Not only could the stereotype groups be categorized consistently, but they were shown to elicit unique patterns of affective response.

Another study suggests that the stereotype content model is mostly universal across cultures, as are warmth and competence as fundamental dimensions of social judgment. Participants from seven European individualist nations as well as three Asian collectivist nations were surveyed about local groups with a similar methodology as found in Fiske 2002. The results suggested three major cross cultural consistencies. First, warmth and competence could be used to reliably differentiate stereotyped groups. Second, ambivalent stereotyped groups, such as high competence and low warmth, were present. Third, high status groups were thought of as competent while competitive groups were seen as low in warmth (Cuddy et al. 2009). This study lends support to the notion that the stereotype content model is not bound by western culture, but rather social judgments of warmth and competence are fundamental across cultures and can be used to classify stereotyped groups.

The stereotype content model was groundbreaking for research in stereotypes, and therefore has crucial implications for the present research. The model provided strong evidence for the first time that the great majority of common stereotypes could be categorized in a reliable and systematic way. Furthermore, it suggested that these clusters of stereotypes elicit unique emotional patterns in the individuals that consider them. This model could help predict how different sets of stereotypical information would affect different decisions, as it demonstrates that multiple stereotyped groups can be compared on two uniform scales of warmth and competence.

Research suggests that perceptions of warmth and competence have key differences when considering how stereotypical information will interact with cognitive load and punitive decisions. Warmth seems to be primary over competence in person

perception. More precisely, research suggests that perceptions of warmth happen faster, are more cognitively available, and are more predictive of affective and behavioral responses than perceptions of competence. For example, Cuddy et al (2006) found that warmth judgments and their associated emotions predicted whether or not individuals intended on actively helping or harming members of stereotyped groups, while perceptions of competence seemed to only predict passive facilitation behaviors. In addition, social perceivers identify words related to warmth faster than words related to competence (Ybarra et al. 2001). Finally, individuals are able to make judgments of trustworthiness in just 100 milliseconds that are consistent with judgments made over a long period of time (Willis & Todorov, 2006)(Fiske et al. 2007).

This tendency to judge warmth quickly and behave accordingly could be due to evolutionary necessity, as an organism must be able to quickly distinguish between “hostile and hospitable” stimuli in order to survive (Caccioppo et al. 1997). Fiske et al. (2007) argues, “From an evolutionary perspective, the primacy of warmth is fitting because another person’s intent for good or ill is more important to survival than whether the other person can act on those judgments... Information about the moral-social dimension is more cognitively accessible, more sought by perceivers, more predictive and more heavily weighted in evaluative judgments.” This aspect of warmth is important when considering its relationship with both cognitive load and punitiveness.

Because of warmth perception’s primacy, cognitive load will likely make warmth more predictive of decisions of punitiveness. As discussed above, perceptions of warmth are closely related to quick emotional intuitions that drive behaviors and thus may be considered to be related to system 1 processing. If individuals’ perceptions of warmth

occur quickly and intuitively, without much conscious thought, an individual under cognitive load may be more likely to rely on these perceptions than an individual who is better able to consider other inputs. Thus, in the context of a punitive judgment, an increase in cognitive load could make perceptions of warmth more predictive of whether or not an individual is more or less punitive towards a stereotyped group.

In summary, stereotypes and in-group/out-group biases seem to affect decisions of punitiveness in everyday and legal environments. However, not all stereotypes affect these decisions the same. The stereotype content model highlights two factors and associated emotions that can be used to classify and compare stereotypes. It is likely that because warmth is a fast, intuitive, and prime perception, high levels of cognitive load will increase the amount warmth predicts punitiveness.

The Present Study.

Considering the previous studies, we can arrive at a few basic assumptions. First, humans tend to process information in a way that is consistent with a dual processing model. Next, high levels of cognitive load seem to occupy the resources needed for deliberative reasoning, which results in individuals relying more on heuristic thought process. One such heuristic is that of stereotypes, which seem to affect punitive decisions, and could likely increase or decrease punitiveness depending on how warm the stereotyped group is perceived to be. Thus, this study proposes that, when making a decision on how much to punish a member of a stereotyped group, an increase in cognitive load would lead to an increased dependence on stereotypical information when making the judgment. Furthermore, this study expects to find increased reports of the emotions associated with each stereotyped group under cognitive load, such that affective

reactions in the individuals making judgments will mediate their decisions of punitiveness.

To state the hypothesis another way, this study expects to find a moderated mediational model, in which the effect of cognitive load on punitiveness is moderated by stereotyped group, and mediated by affective reaction to the stereotyped group. Stereotyped groups with higher levels of warmth are expected to lead to lower levels of punitiveness, thus, cognitive load is expected to decrease punitiveness towards a member of a stereotyped group that is considered high in warmth. Conversely, stereotyped groups with lower levels of warmth are expected to lead to higher levels of punitiveness, thus, cognitive load is expected to increase punitiveness towards a member of a stereotyped group considered low in warmth.

This model synthesizes concepts of dual processing, heuristics, cognitive resources, and punitive decisions in order to describe a process that could be occurring every day. There are a great many sources of stress and distraction in the modern world, many of which exist especially in the courtroom (Miller and Bornstein, 2004). An individual that must leave home, work, and other demanding obligations in order to learn an entirely new process of legal decision making is likely to be facing higher levels of cognitive load. Should this study's hypothesis be supported, this stress could be directly increasing levels of bias in modern courtrooms. This hypothesis could provide another explanation for biases shown in legal settings such as the effect of accents and ethnic backgrounds on the perceptions of legal witnesses (Frumkin, 2007). Ultimately, by identifying a potential cause of bias in the everyday world, this study could provide

suggestions for the mitigation of cognitive load, and thus the mitigation of bias where it is most harmful.

Study 1

Method

Participants.

Research participants consisted of 205 individuals gathered from the online human intelligence task website mturk.com (110 men, 95 women), and compensated with \$0.50. Age ranged from 18 to 73 years old ($M = 31.7$, $SD = 9.8$). Most participants identified as White/Caucasian ($n = 113$), followed by Asian/Asian American ($n = 62$), African American/Black ($n = 13$), Latino/Hispanic ($n = 12$), and all other races ($n = 5$).

Design and procedure. A 2 x 3 between-subjects factorial design was used testing the independent variables of cognitive load (low or high) and stereotyped group (neutral, elderly, or welfare recipient). The dependent variables included punitiveness, person perception (warmth and competence), and affective reactions toward the character (admiration, contempt, pity, and envy). Participants completed the experiment on the MTurk.com website, and were compensated with \$0.50. All participants agreed to an online consent form that informed them of the purpose of the study.

Participants were randomly assigned to one of the six conditions. All participants first read a vignette about an individual, “John,” who commits a “hit and run” crime. Depending on condition, this individual was described as an elderly man, a man who is a welfare recipient, or neutrally as a man. The participants in the high cognitive load condition were then asked to rehearse an eight-digit number, which they were told they must report later in the experiment and instructed not to write down. All participants then

completed questions measuring the extent to which they feel the character should be punished for leaving the scene without providing contact information, to what extent they believe the character is competent or warm, and to what extent they felt certain emotions toward the character. The participants in the high cognitive load conditions were then asked to report the eight-digit number. Finally, all participants were asked to answer a question about the vignette to ensure they read it thoroughly, and were asked basic demographic information.

Materials.

Vignettes. This experiment used three vignettes corresponding to the three levels of the stereotyped group variable. Each vignette describes an individual, “John,” and then describes that individual driving a vehicle into a parked car, and driving away without leaving any form of contact information (See Appendix A). One vignette describes the character as elderly, one describes him as a recipient of welfare, and one only describes him neutrally as a man named John. Fiske’s research has found that the elderly and welfare recipients are two stereotyped groups commonly considered high in warmth and low in competence, or low in warmth and low in competence, respectively (Fiske et al. 2002). The elderly character is described as “an elderly man in his eighties” while the welfare recipient character is described as “a man who regularly receives welfare checks.”

Cognitive load manipulation. This manipulation was used to induce cognitive busyness by asking the participant to rehearse an eight-digit number without writing it down and to report it at the end of the questionnaire. This task was used effectively by Gilbert & Hixon, (1991, Experiments 1 and 2.) This and other similar rehearsal tasks

have also been used in a multitude of studies to restrict participants access to cognitive resources (e.g., Gilbert, Pelham, & Krull 1988, Experiment 1; Gilbert & Osborne 1989, Experiments 1—4; Swann, Hixon, Stein-Seroussi, & Gilbert 1990, Experiments 1 and 3). In order to confirm that the participant attempted to complete the task to the best of his or her ability, we excluded participants who reported more than four digits incorrectly. This allows room for error, while excluding participants who may not have been rehearsing the number, and thus did not experience cognitive load. Participants were also asked if they recorded the eight-digit number in any way, and thus were not under cognitive load. The data from participants that answered affirmatively was excluded.

Measures.

Punitiveness. Participants answered three questions on a Likert scale ranging from 1 (*Not at all*) to 7 (*Very much*) about the extent to which the character in the vignette should be punished and blamed, and how wrong his decision to exit the scene without leaving contact information was. For example, item one reads, “How much should John be punished for driving away without leaving contact information?” (See Appendix C). These questions demonstrate several slightly different concepts of punishment, but are nevertheless highly correlated and utilized in studies to determine participant punitiveness towards a character in a vignette (Cushman, 2008). All three items were averaged and calculated as a punitiveness composite variable ($\alpha = .79$).

Warmth and competence scales. This study utilized a modified version of the warmth and competence scales from Fiske et al. (2002) in order to measure the participant’s social judgments of the character (See Appendix D). Participants used a Likert scale ranging from 1 (*Not at all*) to 7 (*Extremely*) to rate the character on three

traits related to warmth (sincere, warm, good natured) and three traits related to competence (competent, confident, intelligent). Item order was randomized using a list randomizer. The order was the same for all participants. The variables of competence and warmth were then be calculated as the mean competence ($\alpha = .50$) and warmth ($\alpha = .87$). Endorsement of relevant traits demonstrates the activation of stereotypes related to the elderly and welfare recipients and may serve as mediators between cognitive load and punitiveness.

Affective reactions. A modified version of the Fiske et al. (2002) scale was used in this study to measure the participant's feelings of Admiration (fond, admiring), Contempt (contemptuous, disgusted), Envy (jealous, envious), and Pity (pity, sympathetic) towards the character (See Appendix E). Participants were asked to answer using a Likert scale ranging from 1 (*Not at all*) to 7 (*Extremely*). This modified scale is abbreviated from its original form in order to lessen the work required by a participant under cognitive load. The scale only utilizes emotions that were shown to load consistently across factors. These items were then used to calculate mean admiration ($\alpha = .87$), contempt ($\alpha = .72$), envy ($\alpha = .83$), and pity ($\alpha = .76$). Endorsement of relevant emotions demonstrates the activation of stereotypes related to the elderly and welfare recipients and may serve as mediators between cognitive load and punitiveness.

Stereotype manipulation check. The participants were asked to answer a single question regarding the description of the character in the vignette (see Appendix F). The question asked how the character was described in the vignette, and each participant was given three multiple choice options including "elderly," "receiving welfare checks," or

“none of the above.” Any data from a participant that did not answer correctly was excluded.

Results

Data from 43 Participants were excluded as they failed to meet exclusion criteria. Many participants that were excluded were in a welfare recipient stereotyped group condition and indicated they had at one point been on welfare. ($n = 16$). These participants were excluded as they may not have viewed welfare recipients as an out-group, and would thus be a group that is not the target of the study. Others were excluded due to failing to report four out of eight digits correctly in the cognitive load task ($n = 12$). This criterion has been used in previous studies such as Gilbert and Hixon (1991) and is intended to ensure the participant was mentally rehearsing the number in order to increase cognitive load (Appendix B). Other participants were excluded because they indicated they recorded the number during the study ($n = 5$), or because they failed to correctly describe basic information about the vignette in a manipulation check ($n = 14$) (Appendix F).

The data for main outcome variables shows overall high levels of punitiveness ($M = 6.10$, $SD = .0.87$), low levels of warmth, ($M = 2.39$ $SD = 1.22$) low levels of pity ($M = 2.83$, $SD = 1.55$), and generally higher levels of contempt ($M = 4.60$, $SD = 1.53$). Competence was rated relatively low, ($M = 3.42$, $SD = 1.09$) and admiration ($M = 1.89$ $SD = 1.25$) and envy ($M = 1.63$, $SD = 1.05$) were rated very low.

A planned 2x3 Factorial ANOVA was conducted in order to test the effects of cognitive load and stereotyped group on punitiveness. This test did not yield significant results with low variability between conditions. Stereotyped group did not change

judgments of punitiveness ($F(2, 156) = .233, p = .793$). Similarly, no main effect was found for cognitive load on punitiveness ($F(1, 156) = 1.64, p = .202$). Finally, no interaction was detected between stereotyped group and cognitive load ($F(2, 156) = .014, p = .986$). (See Table 1 for mean punitiveness scores).

Planned 2x3 Factorial ANOVAs were also conducted to test the effects of cognitive load and stereotyped group on perceptions of warmth, as well as on reported pity and contempt. A main effect was found for stereotyped group on warmth when controlling for gender as a covariate of warmth ($F(2, 156) = 22.88, p = .042$). The Tukey HSD was used to determine that mean perceptions of warmth towards welfare recipients was significantly lower than other stereotyped groups. No significant difference in warmth was found between the elderly and neutral conditions ($p = .749$). A main effect was also found for stereotyped group on pity ($F(2, 156) = 5.86, p = .004$). The Tukey HSD was used to compare levels of stereotyped group, and found that participants felt significantly more pity towards the elderly character than towards the welfare recipient character ($p = .004$). No other main effects or interactions were found for these dependent variables.

Exploratory analysis ran 2x3 Factorial ANOVAs on all items of the punitiveness scale because despite their correlation, each item measured slightly different concepts. It was found that cognitive load had a main effect on the first item of the punitiveness scale which read, "How much should John be punished for driving away without leaving contact information?" Participants in high cognitive load conditions said that the character should be punished more than participants in low cognitive load conditions (F

(1, 156) = 4.86, $p = .029$). No other effects were found for individual punitiveness scale items.

Discussion

Study 1 was overall inconclusive and failed to reject the null hypothesis. These results could be due to the lack of an overall effect of cognitive load and stereotyped group on punitiveness. However, they are more likely due to an unreliable manipulation of cognitive load, a weak manipulation of stereotyped group, or potential punitiveness ceiling effects.

First, participants on mturk.com may have lower motivation to perform well on survey tasks (Paolacci et al. 2010) which could make results especially unreliable given the cognitive load manipulation utilized in this study. Cognitive load manipulations by definition require effort from the participant. Participants from mturk.com may be less likely to provide this effort as they may be quickly attempting to complete as many online human intelligence tasks as possible. Furthermore, because the experiment was not conducted in a lab setting, it was unclear whether or not participants recorded the eight digit number before reporting it. This would imply participants were not mentally rehearsing it during the experiment, and therefore did not reliably have a higher cognitive load than participants in other conditions.

Next, the manipulations used to activate stereotypes were minimalistic. Each vignette only offered three examples of stereotypical information, mentioning the age of the character or the fact that he received welfare checks. This small amount of information may not have been enough to encourage participants to identify the character as a member of the stereotyped group. This is likely the cause of the very small

differences in perceptions of warmth and competence across conditions. If participants were not identifying the character with a stereotyped group, it follows that no change in punitiveness would occur regardless of level of cognitive load.

This potential issue is consistent with prior research findings. While original research on the stereotype content model did not have any stronger implications of the elderly or welfare stereotyped group, participants were asked directly about how society views these groups (Fiske et al. 2002). Therefore, participants were asked directly to consider the stereotypical attributes of a given group, rather than form a perception of a character that is described briefly as elderly or receiving welfare checks, but also as engaging in other activities. Prior research that asks participants to make actual judgments of an active character in a stereotyped group uses vignettes that have multiple mentions of stereotypical cues and behaviors (Cuddy et al. 2005).

Finally, the low variability between punitiveness scores, ($M = 6.10$, $SD = .87$) may have been due to ceiling effects. Mean punitiveness was high considering its place on a seven point scale, and therefore may not have provided the variability needed to detect effects of cognitive load and stereotyped group. The vignettes used described an unambiguous crime and included the statement that “John carries insurance that would have covered the cost of repairs.” Although this statement was originally intended to prevent participants from feeling additional pity towards the welfare recipient character (as he conceivably could be leaving the scene of the crime because he did not have the money for repairs), it may have made the crime appear too obviously wrong and deserving of blame and punishment across conditions.

The main effect found of cognitive load on the single punitiveness item may have been related to an increase in the intuitive response of retributive justice discussed in Carlsmith et al. (2002). This study argued that people often make punitiveness decisions on the basis of retributive intuitions, despite claiming to be motivated by ideals of reformative justice or deterrence. As discussed above, the crime vignette and the mention of the character's car insurance may have produced a strong punitive response from participants. This response may have been more intuitive than deliberative, as participants in the low cognitive load condition could have better considered potential mitigating factors associated with being elderly or in a lower socioeconomic class. This is consistent with the dual process model, as the intuitive "just desserts" response may have been mitigated when more cognitive resources were available in the low cognitive load condition. However, it is critical to approach and interpret these results with caution, as they were found through post-hoc exploratory analysis. Furthermore, the other two items of the composite punitiveness variable were not significantly affected by cognitive load, and both correlated highly with the item in question.

Study 2

Method

Study two aimed to test the same hypotheses as study one, and was conducted in the same way with the exception of a few key changes. First, participants were gathered from a college campus and conducted the experiment in a supervised lab setting. The neutral condition was dropped due to participant constraints. Next, the vignettes were changed to increase the manipulation strength of stereotyped group, and to avoid punitiveness ceiling effects. Finally, one item was added to the punitiveness scale. These

changes were mostly meant to reduce the causes of uncertainty outlined above. The new participant pool was selected in order to mitigate participant unreliability, and the vignettes were altered to strengthen stereotypical cues and limit punitiveness ceiling effects.

Participants.

There were several reasons to doubt the efficacy of the cognitive load manipulation in study one. Because participants were taking the study online away from researchers, it could not be verified that they performed the cognitive load task beyond self-report. Furthermore, participants on Mturk.com may perform many tasks as quickly as possible in order to supplement income, and thus may have been motivated to not carefully read all instructions and perform all tasks as directed (Paolacci et al. 2010). In order to address these problems, study two gathered participants from a college and conducted the experiment under video surveillance. This enabled researchers to confirm the cognitive load manipulation was being performed as intended.

Research participants consisted of 73 individuals (29 men, 44 women) gathered from Claremont McKenna College, a small liberal arts school in Southern California. Participants were compensated with course credit for their lower level psych courses. Age ranged from 18 to 22 years old ($M = 19.54$, $SD = 1.17$). Most participants identified as White/Caucasian ($n = 36$), followed by Asian/Asian American ($n = 19$), Latino/Hispanic ($n = 11$), African American ($n = 3$), and all other races ($n = 4$).

Design and procedure. A 2x2 between-subjects factorial design was used to test the independent variables of stereotyped group (elderly, welfare recipients), and cognitive load (high, low). The neutral condition from study one was dropped due to limitations on

the amount of participants available. It was theorized that contrasts between these groups could still support the hypothesis by confirming or denying cognitive load's effect on punitiveness as moderated by stereotyped group, and by identifying any mediating variables.

While some materials changed from study one (Vignettes and Punitiveness scale), the rest of the structure remained unchanged. Participants gave consent to participate through an in survey consent form, that was edited to reflect the changes to study two, before completing the study under video surveillance in a lab setting. All participants read a vignette, participants in high cognitive load conditions were given an eight-digit number to rehearse mentally, and then all participants completed questions for punitiveness, person perception, and affective reactions. Like study one, cognitive load was ended before participants finished manipulation checks and demographics.

Materials.

Vignettes. In order to strengthen the manipulation of stereotyped group, this study used modified version of the vignette used in Cuddy et al. 2005 to activate the elderly stereotype. This vignette describes an individual displaying characteristics and actions that could be associated with the elderly stereotype. For example, this elderly man was described as sometimes forgetting his keys. Another vignette was then designed for the welfare recipient condition that was designed to match the elderly vignette in terms of frequency of stereotypical information presented. For example, this man was described as receiving welfare visiting friends in his free time with no mention of looking for work. The crime described in these vignettes was the same as described in study one, however, in order to avoid potential ceiling effects in the measurement of punitiveness, the line

claiming the character had insurance to cover damages was removed. This was intended to make the crime more ambiguous, thus allowing for the effects of cognitive load and stereotyped group to be better distinguished. (Appendix H).

Cognitive load manipulation. No changes were made to the cognitive load manipulation. However, participants were observed under surveillance in order to determine if any recorded the number in any way. Because of this surveillance, we could confidently assume that participants who later reported a similar number were rehearsing the number or attempting to memorize the number while completing the experiment. Therefore, this study avoided the uncertainty of study one, in that it could confirm whether or not participants were correctly performing the manipulation beyond their own self-report.

Measures. The punitiveness scale was modified to include a question regarding perceptions of morality within the character. In addition to the three questions from study one, the participants were asked, “To what extent would you consider John moral?” This question was added to gain an additional input into the participant’s perception of the character of the fictional criminal. Because judgments of character and judgments of punitiveness can be separate (Cushman 2008), we may find judgments of character are effected, without significant changes in punitiveness. All other measures remained the same. Composite variables were again constructed for punitiveness ($\alpha = .78$), warmth ($\alpha = .87$), competence ($\alpha = .47$), pity ($\alpha = .69$), envy ($\alpha = .90$), admiration ($\alpha = .68$), and contempt ($\alpha = .61$).

Results

5 Participants were excluded for failing to correctly describe basic information about the vignette (Appendix F). No participants failed the eight-digit number rehearsal task or reported receiving welfare checks when in the welfare condition.

The data for main outcome variables shows moderately high levels of punitiveness ($M = 5.31$, $SD = .98$), moderately low levels of warmth, ($M = 3.51$, $SD = .92$) moderately low levels of pity ($M = 3.60$, $SD = 1.38$), and generally lower levels of contempt ($M = 3.09$, $SD = 1.14$). Competence was rated relatively low, ($M = 3.73$, $SD = .76$) and admiration ($M = 1.79$, $SD = .92$) and envy ($M = 1.18$, $SD = .57$) were rated very low.

A planned 2x2 Factorial ANOVAs similar to what was used in study 1 was conducted to test the main hypotheses. No main effects were found for cognitive load on punitiveness ($F(1, 64) = .56$, $p = .46$), or for stereotyped group on punitiveness ($F(1, 64) = .86$, $p = .77$) (See Table 2 for mean punitiveness scores). There was also no detected interaction between cognitive load and stereotyped groups on punitiveness ($F(1, 64) = .108$, $p = .74$).

No main effects were found when examining cognitive load's effects on perceptions of warmth ($F(1, 64) = 2.63$, $p = .110$) or competence ($F(1, 64) = .48$, $p = .49$), or feelings of pity ($F(1, 64) = 1.4$, $p = .71$) or contempt ($F(1, 64) = .003$, $p = .96$). Similarly, no main effects were found for Stereotyped group's effects on perceptions of warmth ($F(1, 64) = 2.63$, $p = .110$) or competence ($F(1, 64) = .15$, $p = .70$), or feelings of pity ($F(1, 64) = 1.64$, $p = .21$) or contempt ($F(1, 64) = 2.40$, $p = .13$). Finally, no interactions were found between cognitive load and stereotyped group for warmth ($F(1, 64) = .18$, $p = .68$), or competence ($F(1, 64) = 2.56$, $p = .12$), or feelings of pity ($F(1, 64)$

= .81, $p = .37$) or contempt ($F(1, 64) = .39$, $p = .53$). Exploratory analysis found that cognitive load's effect on a single item of the punitiveness scale, "How much should John be punished for driving away without leaving contact information," approached significance with participants in low load conditions ($M = 5.34$) answering higher than participants in high load conditions ($M = 4.76$) ($F(1, 64) = 3.24$, $p = .076$).

Discussion

Study two yielded no significant results and the null hypothesis was retained for all research questions. There are three main reasons that may explain the lack of main or interaction effects. First, and perhaps most prevalently, this study's power to find effects was low due to the relatively small sample size. This study did not meet its goal for sample size due to time constraints and low number of available participants in Claremont McKenna's participant pool.

Next, students at a small liberal arts college in southern California may be more socially motivated to avoid the welfare stereotype than participants in a larger population. This could help explain, for example, that (while no results were significant) ratings of punitiveness trended higher against the elderly than against the welfare condition.

Finally, the decision to remove the sentence explaining that the character had insurance may have actually created vignettes that encouraged sympathy for the welfare recipient. A "hit and run" crime may be more understandable if one assumes the criminal has no means of paying for the damage. In this case, leaving contact information could truly hurt the life of the welfare recipient, which could help inspire feelings of pity or sympathy rather than contempt. Conversely, an elderly and retired plumber may have less need to flee the scene as he is more likely to carry insurance. Therefore, participants

may view him as less warm or have less feelings of pity towards him as the damage could have been fixed at low relative cost to the elderly man. These uncertainties as well as the non-significant results make it difficult to argue for any empirically supported conclusions.

General Discussion

This study's findings are overall inconclusive, and therefore no support can be assumed for the proposed research hypotheses. However, there are several key methodological considerations that may explain the lack of observed effect. In addition, the findings could be explained by theoretical reasons that could be empirically addressed in future research.

Methodological Issues

There are several possible methodological considerations for this study's inconclusive data. First, as mentioned before, study one and two both had specific potential issues that could have affected results. Participant reliability could not be confirmed when conducting the study through Mturk.com, especially since proper execution of the cognitive load manipulation could not be confirmed. Furthermore, because of the severity of the crime depicted in the vignette, there may have been ceiling effects on the measurement of punitiveness. These ceiling effects could have reduced the variability necessary to detect effects in punitiveness. Next, study 2 was restricted to a relatively small sample size due to recruiting constraints. This severely diminished the study's power, and increased the chance of a type two, false negative error. However, when viewed simultaneously, study one had a large enough sample size and study two was conducted with reliable participants and had higher punitiveness variability. This

means that the study's results could have been affected by a combination of the above factors, but no single one of the above mentioned methodological issues could have been responsible for the lack of findings. In other words, both issues must have been causing a significant reduction in the proposed effect; otherwise one of the studies would show the proposed effects.

Three other methodological issues could have affected both studies conducted. First, it is unclear whether or not the cognitive load manipulation was strong enough, as it is conceivable participants were able to quickly memorize the number without rehearsing it mentally, thus not being under higher levels of cognitive load during the questionnaires. This seems unlikely, however, as a majority of participants were able to finish the questionnaire entirely within less than seven minutes. Furthermore, this same intervention was used successfully in studies such as Gilbert and Hixon (1991). However, it may be beneficial for future studies to increase the cognitive load manipulation to test for potential effects.

Next, internal consistency scores were remarkably low for the competence composite variable. Factor analysis revealed no one item was inconsistent with the other two, but rather there was low correlation between all three items with mean competence being rated as highest, followed by intelligence, and then followed by confidence. This could have been because of the depiction of the character in a hit and run scenario had different effects on these perceived traits. For example, participants may not believe the character is any less competent as car accidents are common, however they may believe the character is unconfident about how to handle a situation in which he caused an accident with no one present.

Finally, the wording of our instruments on person perception and affective reaction may have affected participant responses. The present study directly asks participants what their perceptions of the character were and what emotions they personally felt towards that character. This was done in order to directly measure the participant's perceptions of the character in relation to their punitive decision. This differs from most foundational prior foundational research. Fiske et al. (2002) measures perceptions of warmth and competence and affective reactions, by asking participants how society views such groups. For example, when measuring competence the questionnaire in study one asks "As viewed by society, how competent are members of this group?" (Fiske et al. 2002). Again, when attempting to measure behaviors associated with each stereotypical group for the development of the BIAS map, the questionnaire states, "I am going to ask you about the ways people in America generally behave toward [group] as a group?" (Cuddy et al. 2007). Prior researchers may have included this phrase as a precaution in order to avoid participants' self-report bias and desire to be seen as non-judgmental. In the present study, participants may have been resistant to the stereotype manipulation as they attempted to monitor their own responses for bias, and modified them if they felt their decisions were being affected by the description of the character. This comment, however, is mitigated by Cuddy et al. (2005) that demonstrated participants were still making similar person perceptions of warmth and competence towards the elderly, despite being asked directly about a character in a vignette. It may be more useful to turn to theoretical explanations for the lack of basic person perception observed in the present study.

Theoretical Considerations

Several major theoretical questions follow from the data gathered from the present study, and could be used to guide further research. First, the lack of predicted effects of stereotyped group on perceptions of warmth and competence is inconsistent with prior research, and could require future investigation. A critical attribute of the present study that differs from previous research is the presentation of a character who performs an immoral action, as opposed to a character or group that is merely described in neutral terms as relating to a certain stereotype. Our participants thus had a group identity as well as an action with which to make perceptions of the character. It is possible the effects of stereotyped group are heavily diluted when compared to perceptions of an act with moral implications. For example, after reading about a committed crime, the participant could identify the person less as a member of their stereotyped group, and more as a member of a new group associated with the act, such as criminals. In this case, participants could be less concerned with the character's identity than with his actions, and thus the stereotype information may not have been activated as strongly within the participant when making decisions on warmth and competence. This could be a critical avenue for future research as the field continues to explore how various stereotypes affect behavior in applied situations.

Another possible explanation for the lack of person perception could be related to Sommers & Ellsworth's (2000) study in which they found punitiveness decisions were not as affected by race when race was heavily salient in a trial. Rather, they found that race effected rates of guilt when racial information was present, but not emphasized. Because our participants may have held egalitarian values towards treating all criminals

equal, they may have been more motivated to monitor their responses when the vignettes clearly described the character's group affiliation. This hypothesis is consistent with the fewer predicted findings of person perception in study two than in study one. As stereotyped group information was increased in study two, participants may have been more aware of potential biases when making punitive decisions, and thus were more motivated to reduce bias than participants in study one.

Next, both studies found main effects for cognitive load on the specific item asking how much the character should be punished. However, these effects were in opposing directions, with study 1 finding cognitive load increase punitiveness and study 2 finding cognitive load decrease punitiveness. These results could likely represent natural variability, as the other highly correlated items did not show significant effects and the mean effect between the two studies is null. However, because of the changes in vignette from study one to study two, these results could suggest cognitive load may affect punitiveness, but may be moderated by another variable. The vignettes in study one were impersonal and described the characters as having insurance, thus potentially making the crime seem more inexcusable. Conversely, the vignettes in study two contained more personal information about the character and removed the line about insurance. The presence or absence of mitigating factors or personal information may both be potential moderating variables that could be investigated through future research. If cognitive load directly impacts punitiveness according to certain moderators, there could be important implications for regulating the amount of stress legal professionals, juries, or any other individuals with punitive responsibilities are exposed to.

The present research retains the null hypothesis for all major research hypotheses. However, the unexpected results may suggest that future research on the interactions of stereotypes, cognitive load, and punitiveness could be beneficial to the present literature.

References

- Cacioppo, J. T., Gardner, W. L., & Berntson, G. G. (1997). Beyond bipolar conceptualizations and measures: The case of attitudes and evaluative space. *Personality and Social Psychology Review*, 1(1), 3-25.
- Carlsmith, K. M., Darley, J. M., & Robinson, P. H. (2002). Why do we punish?: Deterrence and just deserts as motives for punishment. *Journal of personality and social psychology*, 83(2), 284.
- Cosmides, L., & Tooby, J. (2006). Evolutionary psychology, moral heuristics, and the law. *Dahlem University Press*.
- Cuddy, A. J., Fiske, S. T., Kwan, V. S., Glick, P., Demoulin, S., Leyens, J. P., & Htun, T. T. (2009). Stereotype content model across cultures: Towards universal similarities and some differences. *British Journal of Social Psychology*, 48(1), 1-33.
- Cuddy, A. J., Norton, M. I., & Fiske, S. T. (2005). This old stereotype: The pervasiveness and persistence of the elderly stereotype. *Journal of Social Issues*, 61(2), 267-285.
- Cushman, F. (2008). Crime and punishment: Distinguishing the roles of causal and intentional analyses in moral judgment. *Cognition*, 108(2), 353-380.
- Danziger, S., Levav, J., & Avnaim-Pesso, L. (2011). Extraneous factors in judicial decisions. *Proceedings of the National Academy of Sciences*, 108(17), 6889-6892.
- De Neys, W. (2006). Dual processing in reasoning two systems but one reasoner. *Psychological science*, 17(5), 428-433.

- Evans, J. S. B., & Curtis-Holmes, J. (2005). Rapid responding increases belief bias: Evidence for the dual-process theory of reasoning. *Thinking & Reasoning*, 11(4), 382-389.
- Evans, J. S. B., & Stanovich, K. E. (2013). Dual-process theories of higher cognition advancing the debate. *Perspectives on psychological science*, 8(3), 223-241.
- Fischer, P., Greitemeyer, T., & Frey, D. (2008). Self-regulation and selective exposure: the impact of depleted self-regulation resources on confirmatory information processing. *Journal of personality and social psychology*, 94(3), 382.
- Fiske, S. T., Cuddy, A. J., Glick, P., & Xu, J. (2002). A model of (often mixed) stereotype content: competence and warmth respectively follow from perceived status and competition. *Journal of personality and social psychology*, 82(6), 878.
- Fiske, S. T., Cuddy, A. J., & Glick, P. (2007). Universal dimensions of social cognition: Warmth and competence. *Trends in cognitive sciences*, 11(2), 77-83.
- Fiske, S. T., Xu, J., Cuddy, A. C., & Glick, P. (1999). (Dis) respecting versus (dis) liking: Status and interdependence predict ambivalent stereotypes of competence and warmth. *Journal of Social Issues*, 55(3), 473-489.
- Foley, L. A., & Chamblin, M. H. (1982). The effect of race and personality on mock jurors' decisions. *The Journal of Psychology*, 112(1), 47-51.
- Frumkin, L. (2007). Influences of accent and ethnic background on perceptions of eyewitness testimony. *Psychology, Crime & Law*, 13(3), 317-331.

- Gilbert, D. T., & Hixon, J. G. (1991). The trouble of thinking: activation and application of stereotypic beliefs. *Journal of Personality and Social Psychology*, 60(4), 509.
- Gilbert, D. T., & Osborne, R. E. (1989). Thinking backward: Some curable and incurable consequences of cognitive busyness. *Journal of Personality and Social Psychology*, 57(6), 940.
- Gilbert, D. T., Pelham, B. W., & Krull, D. S. (1988). On cognitive busyness: When person perceivers meet persons perceived. *Journal of personality and social psychology*, 54(5), 733.
- Greene, J., & Haidt, J. (2002). How (and where) does moral judgment work? *Trends in cognitive sciences*, 6(12), 517-523.
- Greene, J. D., Morelli, S. A., Lowenberg, K., Nystrom, L. E., & Cohen, J. D. (2008). Cognitive load selectively interferes with utilitarian moral judgment. *Cognition*, 107(3), 1144-1154.
- Gutsell, J. N., & Inzlicht, M. (2010). Empathy constrained: Prejudice predicts reduced mental simulation of actions during observation of outgroups. *Journal of Experimental Social Psychology*, 46(5), 841-845.
- Hoorens, V. (1993). Self-enhancement and superiority biases in social comparison. *European review of social psychology*, 4(1), 113-139.
- Hoorens, V., & Buunk, A. P. (1992). Self-serving biases in social-comparison-illusory superiority and unrealistic optimism. *Psychologica belgica*, 32(2), 169-194.

- Levin, I. P., Schneider, S. L., & Gaeth, G. J. (1998). All frames are not created equal: A typology and critical analysis of framing effects. *Organizational behavior and human decision processes*, 76(2), 149-188.
- Levin, I. P., & Gaeth, G. J. (1988). How consumers are affected by the framing of attribute information before and after consuming the product. *Journal of consumer research*, 374-378.
- Macrae, C. N., Milne, A. B., & Bodenhausen, G. V. (1994). Stereotypes as energy-saving devices: a peek inside the cognitive toolbox. *Journal of Personality and Social Psychology*, 66(1), 37.
- Miller, M. K., & Bornstein, B. H. (2004). *Juror stress: Causes and interventions*. T. Marshall L. Rev., 30, 237.
- Monteith, M. J. (1993). Self-regulation of prejudiced responses: Implications for progress in prejudice-reduction efforts. *Journal of Personality and Social Psychology*, 65(3), 469.
- Moore, A. B., Clark, B. A., & Kane, M. J. (2008). Who shalt not kill? Individual differences in working memory capacity, executive control, and moral judgment. *Psychological science*, 19(6), 549-557.
- Morewedge, C. K., & Kahneman, D. (2010). Associative processes in intuitive judgment. *Trends in cognitive sciences*, 14(10), 435-440.
- Nickerson, R. S. (1998). Confirmation bias: A ubiquitous phenomenon in many guises. *Review of general psychology*, 2(2), 175.

- Nisbett, R. E., & Wilson, T. D. (1977). The halo effect: Evidence for unconscious alteration of judgments. *Journal of personality and social psychology*, 35(4), 250.
- Paolacci, G., Chandler, J., & Ipeirotis, P. G. (2010). Running experiments on amazon mechanical turk. *Judgment and Decision making*, 5(5), 411-419.
- Petty, R. E., & Cacioppo, J. T. (1986). The elaboration likelihood model of persuasion. *Advances in experimental social psychology*, 19, 123-205.
- Salkind, N. J. (Ed.). (2008) . in *Encyclopedia of educational psychology* (Vol. 1). Sage Publications.
- Schulz, J. F., Fischbacher, U., Thöni, C., & Utikal, V. (2014). Affect and fairness: Dictator games under cognitive load. *Journal of Economic Psychology*, 41, 77-87.
- Sherman, J. W., Lee, A. Y., Bessenoff, G. R., & Frost, L. A. (1998). Stereotype efficiency reconsidered: Encoding flexibility under cognitive load. *Journal of Personality and Social Psychology*, 75(3), 589.
- Sommers, S. R., & Ellsworth, P. C. (2000). Race in the courtroom: Perceptions of guilt and dispositional attributions. *Personality and Social Psychology Bulletin*, 26(11), 1367-1379.
- Sommers, S. R., & Ellsworth, P. C. (2001). White juror bias: An investigation of prejudice against Black defendants in the American courtroom. *Psychology, Public Policy, and Law*, 7(1), 201.

- Sommers, S. R., & Ellsworth, P. C. (2003). *How much do we really know about race and juries-a review of social science theory and research*. Chi.-Kent L. Rev., 78, 997.
- Swann, W. B., Hixon, J. G., Stein-Seroussi, A., & Gilbert, D. T. (1990). The fleeting gleam of praise: Cognitive processes underlying behavioral reactions to self-relevant feedback. *Journal of Personality and Social Psychology*, 59(1), 17.
- Sweeney, L. T., & Haney, C. (1992). The influence of race on sentencing: A meta-analytic review of experimental studies. *Behavioral Sciences & the Law*, 10(2), 179-195.
- Taylor, T. S., & Hosch, H. M. (2004). An examination of jury verdicts for evidence of a similarity-leniency effect, an out-group punitiveness effect or a black sheep effect. *Law and Human Behavior*, 28(5), 587.
- Tversky, A., & Kahneman, D. (1974). *Judgment under uncertainty: Heuristics and biases*. *Science*, 185(4157), 1124-1131.
- Tversky, A., & Kahneman, D. (1981). The framing of decisions and the psychology of choice. *Science*, 211(4481), 453-458.
- Valdesolo, P., & DeSteno, D. (2006). Manipulations of emotional context shape moral judgment. *Psychological science*, 17(6), 476-477.
- Ward, A., & Mann, T. (2000). Don't mind if I do: disinhibited eating under cognitive load. *Journal of personality and social psychology*, 78(4), 753.

- Whitney, P., Rinehart, C. A., & Hinson, J. M. (2008). Framing effects under cognitive load: The role of working memory in risky decisions. *Psychonomic Bulletin & Review*, 15(6).
- Willis, J., & Todorov, A. (2006). First impressions making up your mind after a 100-ms exposure to a face. *Psychological science*, 17(7), 592-598.
- Wigboldus, D. H., Sherman, J. W., Franzese, H. L., & van Knippenberg, A. (2004). Capacity and comprehension: Spontaneous stereotyping under cognitive load. *Social Cognition*, 22(3), 292-1179-1184.
- Ybarra, O., Chan, E., & Park, D. (2001). Young and old adults' concerns about morality and competence. *Motivation and Emotion*, 25(2), 85-100.

Appendix A

Study 1 Vignettes

Neutral Description

A man named John was recently driving home and on the way hit the rear of a parked car. The car he hit was seriously damaged, and would need to be repaired in order to be used again. John saw the damage he caused to the other vehicle. However, he drove away without leaving any form of contact information. John carries insurance that would have covered the cost of repairs.

Elderly Stereotype

John is an elderly man in his 80s that lives in a local retirement home. Recently, he was driving home and on the way hit the rear of a parked car. The car he hit was seriously damaged, and would need to be repaired in order to be used again. John saw the damage he caused to the other vehicle. However, he drove away without leaving any form of contact information. John carries insurance that would have covered the cost of repairs.

Welfare Recipient Stereotype

John is a man who regularly receives welfare checks. Recently, he was driving to pick up his welfare check and on the way hit the rear of a parked car. The car he hit was seriously damaged, and would need to be repaired in order to be used again. John saw the damage he caused to the other vehicle. However, he drove away without leaving any form of contact information. John carries insurance that would have covered the cost of repairs.

Appendix B

Cognitive Load Manipulation

Please read the following 8 digit number and rehearse it mentally as you complete the rest of the experiment.

You will be asked to report the number at the end of the survey.

Please do not write this number down or record it in anyway during the study.

5 6 2 6 6 7 1 4

Appendix C

Please use the 7-point scale (1 = not at all, 7 = very much) to answer the following questions:

1. How much should John be punished for driving away without leaving contact information?
2. How wrong was it for John to drive away without leaving contact information?
3. How much blame does John deserve for driving away without leaving contact information?

Appendix D

Warmth and Competence Scale

Please use the 7-point scale (1 = not at all, 7 = extremely) to answer the following questions:

In your opinion, how “X” is John?

[Competent (C), Sincere (W), Warm (W), Confident (C), Intelligent (C), Good Natured (W)]

C = Competence traits

W = Warmth traits

Note: The “X” will be replaced by the words in the brackets for each question.

Appendix E

Affective Reaction Scale

Please use the 7-point scale (1 = not at all, 7 = extremely) to answer the following questions:

How much do you feel the following emotions toward John?

[Sympathetic (P), Contemptuous (C), Envious (E), Fond (A), Admiring (A), Pity (P), Jealous (E), Disgusted (C)]

A = Admiration Emotions

C = Contempt Emotions

E = Envy Emotions

P = Pity Emotions

Appendix F

Stereotype Manipulation Check

Please answer the following question using the multiple choice options below:

John was described as:

- A. Elderly
- B. Receiving Welfare Checks
- C. None of the Above

Appendix G

Demographics

1. What is your age? ☐
2. What is your gender?
☐ Male
☐ Female
☐ Other
3. What is your ethnicity?
☐ White/Caucasian
☐ Asian/Asian American
☐ Latino/Hispanic
☐ African American/Black
☐ Other
4. What education level have you completed?
☐ Some High School
☐ High School Diploma
☐ Some Undergraduate
☐ Undergraduate Degree
☐ Some Grad School
☐ Master's Degree or Higher
☐ Other
5. Have you ever been on welfare?
☐ Yes
☐ No
☐ Other

Appendix H

Study 2 Vignettes

Elderly Stereotype

John is an 81 year old retired plumber that lives in a local retirement home. John normally has good memory, but last week he spent over a half-hour trying to find his car keys. Recently, John was driving to visit his grandchildren and on the way hit the rear of a parked car. The car he hit was seriously damaged, and would need to be repaired in order to be used again. John saw the damage he caused to the other vehicle. However, he drove away without leaving any form of contact information.

Welfare Recipient Stereotype

John is a 31 year old man who used to work in plumbing and now regularly receives welfare checks. John normally spends his day buying groceries, cleaning his house, visiting with friends. Recently, John was driving to pick up his welfare check and on the way hit the rear of a parked car. The car he hit was seriously damaged, and would need to be repaired in order to be used again. John saw the damage he caused to the other vehicle. However, he drove away without leaving any form of contact information.

Appendix I

Tables and Figures

Table 1

Punitiveness for High and Low Cognitive Load: Study 1

<i>Stereotyped Group</i>	<i>Low Cognitive Load</i>			<i>High Cognitive Load</i>		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
<i>Neutral</i>	34	6.03	.89	28	6.24	.88
<i>Elderly</i>	32	5.96	.92	24	6.14	.89
<i>Welfare Recipient</i>	23	6.09	.92	21	6.24	.73

Table 2

Punitiveness for High and Low Cognitive Load: Study 2

<i>Stereotyped Group</i>	<i>Low Cognitive Load</i>			<i>High Cognitive Load</i>		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
<i>Elderly</i>	18	5.28	1.07	19	4.67	1.47
<i>Welfare Recipient</i>	18	5.50	1.34	18	4.95	1.33

Figure 1

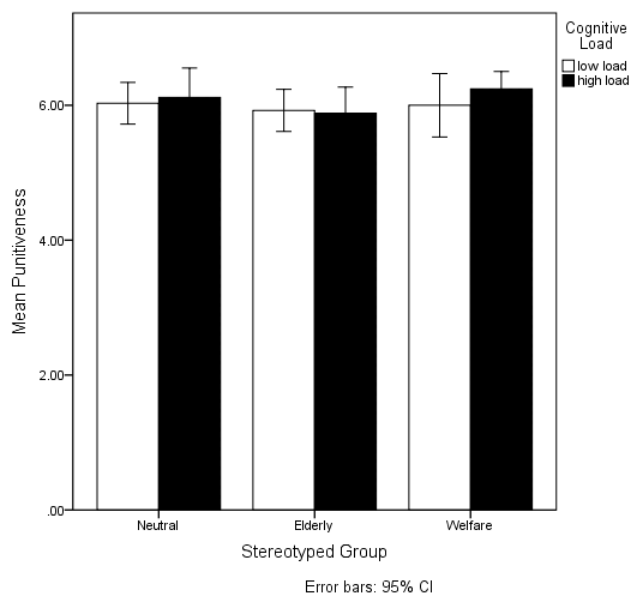
Study 1 Punitiveness Across Stereotyped Group and Cognitive Load

Figure 2

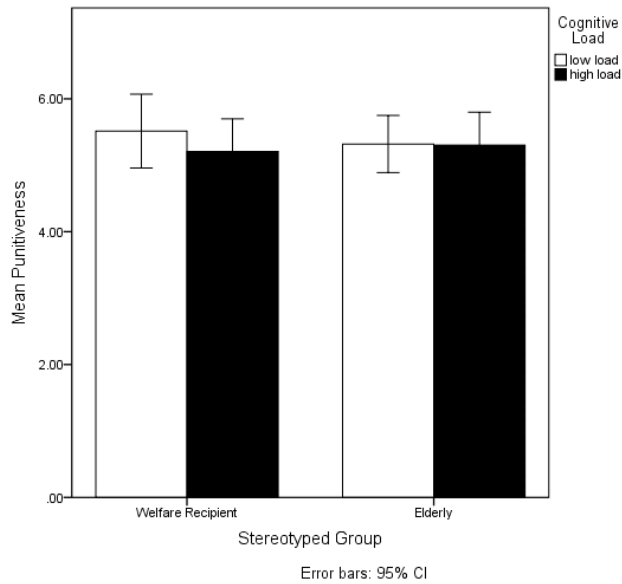
Study 2 Punitiveness Across Stereotyped Group and Cognitive Load

Figure 3

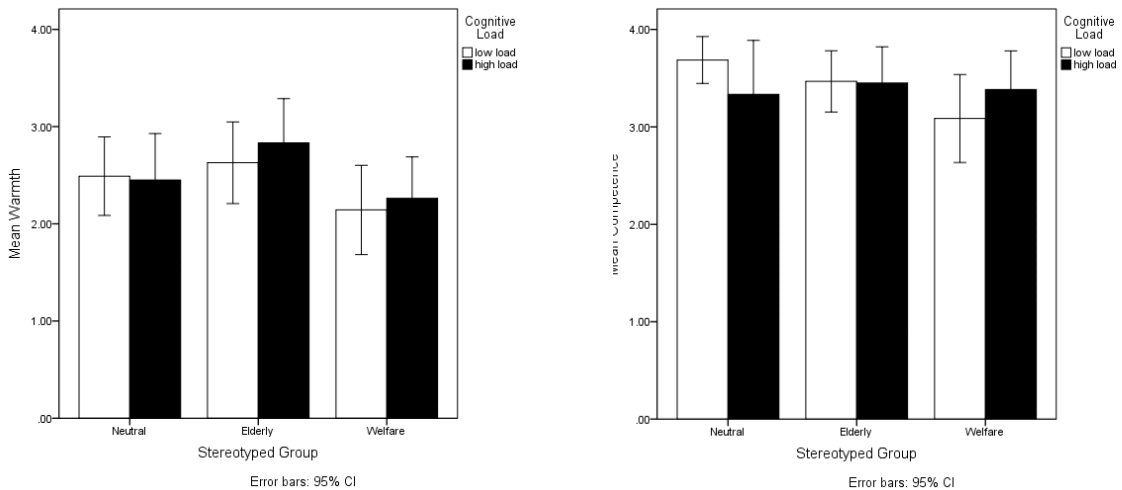
Study 1 Warmth and Competence Across Stereotyped Group and Cognitive Load

Figure 4

Study 2 Warmth and Competence Across Stereotyped Group and Cognitive Load