

# The Impact of Pretrial Publicity and Need for Cognition on Mock-Jurors' Decisions and Deliberation Behavior

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**Abstract** This experiment explored whether negative pretrial publicity (N-PTP) and need for cognition (NC) affect mock-jurors' decisions and deliberation behaviors (N = 169). Jurors and juries exposed to N-PTP were significantly more likely to render guilty verdicts than non-exposed jurors/juries. There was a significant PTP x NC interaction on post-deliberation individual verdicts. High-NC jurors exposed to N-PTP were less likely to vote guilty than their low-NC counterparts, suggesting a corrective function of NC on PTP bias. Hierarchical analyses revealed a significant PTP x NC interaction for juror deliberation behavior. For N-PTP jurors, those high in NC talked more and were rated higher on assertiveness, leadership, influence on verdicts, and presenting logical and strong arguments than those low in NC. For non-exposed jurors NC status did not significantly affect any of the deliberation behaviors coded. This research suggests that how and whether NC influences juror verdicts and deliberation behavior depends on case-related variables present.

**Keywords** Pretrial bias, Jury decision making, Jury deliberation effects, Need for cognition, Content analysis

## 1. Introduction

During a criminal trial, jurors process information and evidence from both the defense and the prosecution in order to make the crucial and difficult decision regarding a person's guilt. Juror/jury research suggests that how jurors interpret, or use information presented during trial, can be affected by information presented before trial and by individual difference variables. For example, research has shown that exposure to negative pretrial publicity (N-PTP; anti-defendant) can bias jurors' interpretations of trial evidence, as well as how much weight this evidence is given [1, 2]. Research has also shown that exposure to N-PTP increases the likelihood of a guilty verdict [see 3 for review]. In addition, Need for Cognition (NC) has been deemed an important variable, within the elaboration likelihood model (ELM), for explaining how and when people are persuaded [4-7]. NC has been shown to affect jurors' judgments [8] and deliberation behavior [9], and moderates the effect of important case variables (e.g., case strength, evidence quality, and inadmissible evidence) on juror decisions [10-12]. While the prevalence of PTP in high profile cases increases the likelihood that prospective jurors will be exposed to PTP, jurors' NC status may influence PTP's impact on verdicts and affect deliberation behavior. Using a paradigm similar to Shestowsky and Horowitz [9], our research examines

whether NC interacts with PTP to influence jurors' decisions and deliberation behavior, thus having a moderating effect on them.

### 1.1. Elaboration Likelihood and Need for Cognition

The Elaboration Likelihood Model (ELM) [7] is based on the idea that "people are motivated to hold correct attitudes, but have neither the resources to process vigilantly every persuasive argument nor the luxury, or inclination, to ignore them all" [13, p. 1032]. According to ELM, persuasive communications have their effects through two routes: central and peripheral. The central route of persuasion entails considerable cognitive effort, which involves accessing, scrutinizing, and integrating all useful information in order to make judgments [5, 7]. The peripheral route consists of a lack of effortful processing and motivation, in which simple cues (e.g., attractiveness of the source or the number of arguments presented) have more influence on judgments than relevant judgment information [6, 14, 7].

Whether people engage in central/systematic processing is influenced by their motivation and ability to do so [5, 7], absence of either is likely to result in peripheral or heuristic processing [15]. People's motivation to engage in effortful processing has been shown to be influenced by both dispositional (NC) [16] and situational variables (personal relevance, personal responsibility, and group size) [17; 18; see 15 for review]. Cacioppo and Petty [16] proposed that NC (people's tendency to engage in and enjoy effortful cognitive activities) was a stable individual difference, which subsequent research supports [see 15 for review]. Research suggests that people high in NC rely more heavily

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Published online at <http://journal.sapub.org/ijpbs>

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on issue-relevant information (e.g., trial evidence) and are more likely to process information via the central route [13]; whereas people low in NC tend to focus on the peripheral cues such as the attractiveness of the attorneys, the popularity of the defendant, or the opinions or others [15]. Past research has also shown that persons high in NC tend to rely on stronger and more relevant arguments, than weaker ones. Whereas, individuals low in NC typically do not differentiate between strong and weak arguments unless given incentive to do so [19; see 15 for review].

Although people high in NC have a greater tendency to engage in effortful cognitive processing than those low in NC, “the extant literature confirms that this relationship can be moderated by factors such as situational influences on cognitive motivation (e.g., personal relevance of an event or external contingencies surrounding a task)” [15, p. 244]. For example, Cacioppo et al.’s [15] review found neither high- nor low-NC individuals were likely to use heuristic processing when a topic was high in personal relevance. However, when a topic was low in personal relevance individuals low in NC were more likely to utilize heuristics, such as number of arguments or source credibility, to process and evaluate the information. This is interesting and has implications for juror/jury decision making. Specifically, it suggests that individuals’ motivation to engage in effortful cognitive processing can be influenced by NC and situational variables (e.g., importance of decision and individual responsibility), which could result in important differences in jurors’ decisions and deliberation behavior. The primary goals of the present study were to examine: (1) the effect of NC on juror decisions and deliberation behavior, (2) whether NC moderated the effect of PTP on juror decisions, and (3) whether the effect of NC on juror deliberation behavior varied as a function of PTP exposure.

## 1.2. Need for Cognition and Juror Decisions: Intrapersonal Aspects

Most of the research exploring the effect of NC on jurors’ decisions has involved nondeliberating jurors and intrapersonal cognition or persuasion. Therefore, how these individual differences affect group decisions (interpersonal aspects of NC) has not been well studied [20]. That being said, there is a significant amount of research at the juror level, which suggest that while NC rarely has a main effect on juror verdicts or guilt ratings it appears to moderate the effect of important case related variables (e.g., evidence strength, case strength, and use of inadmissible evidence) on juror decisions [8, 11, 12]. Thus as Bornstein [8] suggests, NC may serve as a *moderator* when interpreting and processing complex information, such as scientific evidence or expert testimony. Next we explore how NC might moderate the effect of PTP on juror decisions (intrapersonal persuasion).

The present study is concerned with how the more elaborate processing of high-NC jurors would affect the verdicts of N-PTP exposed and non-exposed jurors.

Specifically, would high-NC jurors be more likely to disregard PTP or attempt to correct for PTP bias, making them less likely to vote guilty than similarly exposed low-NC jurors? Consistent with past research, we expected NC to moderate the effect of PTP on verdicts. This NC x PTP interaction was expected based on two previous research findings. The first, indicating that high NCs have greater ability and motivation than low NCs to correct for obvious bias (see 21 for review). The second showing that case strength can moderate the effect of NC on decisions [10].

Wegener et al.’s [21] review of the literature suggests that if the threat of bias is obvious, high NCs are more likely than low NCs to exert the cognitive effort necessary to overcome potential bias [also see 13 for review]. Sommers and Kassin [12] found evidence of bias correction for high-NC jurors, but not for low-NC jurors. Specifically, evidence (wiretap) admissibility (admissible vs. inadmissible) significantly affected the verdicts of high-NC jurors, but not low-NC jurors. This bias correction was selective in that high NCs disregarded inadmissible evidence that was unreliable (weak), but used this same information when it violated due process and was deemed reliable.

Also relevant to the current study, case strength has been found to moderate the effect of NC on verdicts. Leippe et al. [10] found that high-NC jurors were less likely to vote guilty, than low-NC (study 2) and moderate-NC (studies 1 and 2) jurors, when the case was moderately strong. They attributed this finding to the greater scrutiny of the trial evidence by high NCs. Thus, making high NCs more likely to consider evidence for the weaker side (defense), resulting in a greater likelihood of finding a basis for reasonable doubt in such cases. In contrast, when the case was moderately weak, moderate-NC jurors were more likely to render guilty verdicts than their high- and low-NC counterparts; while the verdicts of high- and low-NC jurors did not significantly differ.

Taken together the research and theory described above suggests that high-NC jurors who are exposed to N-PTP may be less likely to vote guilty than similarly exposed low-NC jurors. This is due to high-NCs’ increased motivation and ability to correct for PTP bias and propensity to scrutinize evidence from both sides (defense and prosecution) of the case. That being said, correction is only likely to occur if high NCs deem the N-PTP to be unreliable and are aware of its biasing effects. Research suggests that people are often unaware of the effect of biasing factors on their decisions and that their attempts at correction are often not wholly successful [22-25]. We now turn to the research on interpersonal persuasion aspects of NC, focusing on individuals interacting in group settings (jurors interacting on juries).

## 1.3. Need for Cognition and Juror Deliberation Behavior: Interpersonal Aspects

The research reviewed above suggests that NC may moderate the effect of PTP on juror verdicts. The question

we now turn to is how might NC status influence juror deliberation behavior? The NC processing links would suggest that because of their increased motivation to engage in effortful cognitive processing, high-NC jurors should be more cognitively active during the deliberation process. Previous research on NC and group settings has found that high NC individuals are more likely than low NCs to generate convincing arguments [26], enter discussions earlier [27], seek advice on task related issues [28], and speak longer in dyads and small groups [9, Study 1]. Petty and Cacioppo [7] suggested that differences between high and low NCs during collaborative tasks are attributable to a reduction in motivation due to a decrease in *personal responsibility*. Specifically, group collaboration (deliberation) could result in *social loafing* by the jurors low in NC [29, 30] Smith et al. [30] found that while high and low NCs performed similarly on a cognitive perceptual task when completing it on their own, their performance differed when completing the task in a collaborative environment; with high NCs outperforming low NCs.

Shestowsky and colleagues [9, 31] examined the deliberation behavior of mock jurors who were high and low in NC by having them deliberate in groups of either two or four (consisting of equal numbers of high and low NC jurors) after reading a summary of a civil trial. They found that high-NC jurors demonstrated greater involvement in the deliberation process by talking significantly longer than low-NC. High-NC jurors were also rated as more persuasive, assertive, and made more significant contributions to the deliberations than low-NC jurors. Surprisingly, high-NC jurors were less prone to change their decisions based on valid arguments during deliberations than were low-NC jurors.

So how might PTP exposure, which should result in high levels of proscribed information (PTP) and verdict consensus, moderate the NC processing links to influence juror deliberation behavior in a criminal trial? The level of consensus as to the “correct” decision could affect personal responsibility and therefore motivation to participate in deliberations. When group consensus is low (ambiguous trial without PTP exposure) and the decision is deemed important (high in personal responsibility – e.g., verdict decision in a murder trial) then both high and low NCs should be motivated to put forth cognitive effort. As Cacioppo et al. [15, p. 244] stated “some events or decisions have such high personal relevance and consequences that nearly everyone can be expected to give considerable thought to them.” In contrast, when group consensus is high (all jury members are exposed to N-PTP), motivation to perform and engage in effortful cognitive processing should be reduced (even when the decision is deemed important), which is likely to result in social loafing by low NCs. In such situations low NCs can count on their high-NC counterparts to present supporting evidence for their preferred side [9].

In summary, both NC and situational variables have been found to affect individuals' motivation and ability to engage

in effortful cognitive processing. Obviously, jurors' motivation to process case-related information and participate in jury deliberations can have an important impact on both juror and jury decisions, as well as the jury deliberation process. Our questions regarding whether PTP and NC interact to affect verdicts and deliberation behavior are important given that on actual juries there will be a naturally occurring distribution of jurors who are high and low in NC. These jurors, at least in high-profile cases, are likely to have some exposure to PTP. Jurors who are most active and successful at consensus building and who take on leadership roles during deliberations will have the most influence on the jury's verdict. Thus, if high NCs have been exposed to PTP this may be especially problematic and may result in jury deliberations increasing juror bias (polarizing). This being said, when compared to low NCs, high NCs have been found to be less likely to vote guilty in cases that are moderately strong, presumably due to their propensity to critically examine all evidence and ability and willingness to correct for bias.

#### 1.4. Hypotheses

In consideration of theory and previous research we formulated three hypotheses relating to how PTP exposure and NC status would influence mock-jurors' guilt assessments and pre-deliberation consensus, and two hypotheses regarding how PTP and NC would affect juror deliberation behaviors.

**Hypothesis 1.** Jurors exposed to N-PTP will have higher guilt assessments (higher guilt ratings and more likely to render guilty verdicts) than jurors and juries who are not exposed to PTP (non-exposed).

**Hypothesis 2.** The effect of PTP on *juror* verdicts and guilt ratings was expected to be moderated by NC, which would be demonstrated by a significant NC x PTP interaction. Specifically, N-PTP jurors who were high in NC should demonstrate less PTP bias (lower conviction rates and mean guilt ratings) than their low NC counterparts. We did not expect our non-exposed jurors to differ on verdicts as a function of NC status.

**Hypothesis 3.** Given the ambiguity of the trial stimuli and the biasing effect of N-PTP, we expected that the N-PTP juries would demonstrate greater consensus/agreement in their pre-deliberation verdicts than non-exposed juries.

**Hypothesis 4.** During deliberations, we expected that jurors scoring high in NC would be rated as more assertive, persuasive, knowledgeable, and confident; as well as having more influence on verdicts, scoring higher on leadership, providing more logical/valid arguments, and would spend a greater amount of time talking than their low NC counterparts.

**Hypothesis 5.** The main effect of NC on juror deliberation behavior was expected to be qualified by a significant PTP x NC interaction. Specifically, the significant differences in juror deliberation behavior noted in hypothesis 4 are expected only for jurors exposed to N-PTP. Non-exposed

jurors, regardless of NC status, should put forth considerable thought and effort due to the presence of situational factors (e.g., personal responsibility associated with criminal trial and low pre-deliberation consensus) that have been found to reduce or eliminate observed difference between high and low NCs. In contrast, if as expected pre-deliberation consensus is high among N-PTP jurors then personal responsibility will be reduced; resulting in reduced motivation. Reduction in motivation in group situations has been found to result in social loafing for low NCs, but not high NCs [30].

## 2. Method

### 2.1. Participants

The participants consisted of 169 jury-eligible university students (51 males and 118 females) who ranged in age from 18 to 51 ( $M = 20$ ,  $SD = 4.60$ ). Participants received extra course credit for their participation. Of these participants, 100 were Caucasian, 34 were African American, 11 were Asian, 23 were Hispanic, and 1 fell into the other category.

### 2.2. Stimuli

#### 2.2.1. Trial

A videotaped murder trial (*NJ v Bias*) of a man accused of murdering his wife was edited to run approximately 30 minutes. The defendant claimed that his wife accidentally shot herself when he tried to prevent her from committing suicide. The edited trial contained all of the elements of an actual trial (i.e., opening and closing arguments of the prosecution and defense, direct and cross-examinations of prosecution and defense witnesses, and closing arguments of prosecution and defense). Prior research using the same stimulus trial [1, 32-34] indicated that the trial was perceived as being realistic and believable and was ambiguous as to guilt.

#### 2.2.2. Pretrial Publicity

The N-PTP stimulus consisted of nine actual news stories written about the *NJ v Bias* case that were modified for use in this study. These news stories contained general case information (e.g., victim information, when and where the crime took place, and a description of the crime) and negative information about the defendant that was not presented in trial, which could have a biasing effect on juror/jury decisions (see Appendix A for a sample of PTP information).

The news articles for the non-exposed condition consisted of nine actual news stories that were approximately the same length (10 pages of text) as the N-PTP articles and were taken from the same newspaper archive. These articles contained information about a woman accused of embezzling child support funds.

### 2.3. Measures

#### 2.3.1. Verdicts and Guilt Rating

The participants were asked for their verdicts (not guilty, hung, or guilty) and verdict confidence scores (1 = *not at all confident* to 7 = *completely confident*). The hung option was only available for the group verdict. To obtain the guilt ratings, jurors' confidence scores and verdicts were combined resulting in a 14 point scale ranging from 1 (indicating completely confident in *not guilty* verdict) to 14 (completely confident in a *guilty* verdict). Unanimous juries deliberated to consensus on both verdicts and verdict confidence, producing a single verdict and confidence score, from which a single guilt rating was calculated. If a jury came to a hung verdict each juror member was asked to provide his/her own verdict and confidence score. Guilt ratings for hung juries consisted of the mean guilt rating of its members.

#### 2.3.2. Need for Cognition

Prior to reading the news articles, participants completed the 18-item Need for Cognition scale [13]. The NC scale consists of statements such as, "Thinking is not my idea of fun" and "I prefer my life to be filled with puzzles that I must solve." The response scale for these items ranged from 1 (extremely uncharacteristic of you) to 5 (extremely characteristic of you), with 3 indicating uncertain. Therefore, participant scores could range from 18 to 90, with the observed range being 37 to 83. Similar to Bornstein [8] and Shestowsky and Horowitz [9], the distribution of NC scores ( $N = 169$ ) was bifurcated with those in the bottom half of the distribution labeled *low NCs* ( $M = 52.71$ ,  $SD = 5.97$ ) and those in the top half labeled *high NCs* ( $M = 68.31$ ,  $SD = 4.79$ ). These dichotomous scores were used in all analyses. Jurors were randomly assigned to juries and PTP conditions resulting in four juries (2 N-PTP and 2 non-exposed) having only one high or low NC juror, the remaining juries had at least 2 high and 2 low NC jurors. The number of high and low NCs jurors across the PTP conditions was approximately equal. For N-PTP there were 46 (52%) high NCs and 42 (48%) low NCs. For the non-exposed there were 43 (53%) high NCs and 38 (47%) low NCs. The mean proportion of high and low NCs sitting on individual juries was similar ( $M_s = .53$  and  $.47$ ,  $SD_s = .16$  and  $.16$ , respectively). Finally, N-PTP and U-PTP conditions did not significantly differ on mean NC scores ( $M_s = 61.53$  and  $60.53$ ,  $SD_s = 8.91$  and  $9.84$ , respectively),  $F(1, 167) = 0.69$ ,  $MSE = 87.72$ ,  $p = .41$ .

### 2.4. Design

This experiment utilized a 2 (PTP: N-PTP vs. non-exposed) x 2 (NC: low vs. high) between subjects design. Juries consisted of 5 to 6 mock-jurors who deliberated and made a group decision regarding guilt of the defendant. Of the 29 juries, 15 were exposed to N-PTP ( $n = 88$ ) and 14 were not exposed to PTP ( $n = 81$ ). For the N-PTP exposed

juries, 13 consisted of 6 jurors and 2 consisted of 5 jurors. For the non-exposed juries, 11 consisted of 6 jurors and 3 consisted of 5 jurors.

## 2.5. Procedure

This experiment consisted of three phases, which are explained below. Written informed consent was obtained at the beginning of each phase of the experiment.

### 2.5.1. First Phase

During phase 1, participants completed a demographic questionnaire and NC scale. They then read either the N-PTP or unrelated news stories. Before being excused the participants were instructed not to talk about anything they had read during the study with each other.

### 2.5.2. Second Phase

Approximately one week after exposure to the articles, participants viewed the videotaped murder trial. At the end of the video trial the judge gave the jury the following instructions: "If you are not satisfied beyond a reasonable doubt that the defendant did in fact cause the victim's death, or that the defendant acted purposely or knowingly, then you must find the defendant not guilty of murder." The participants were then excused for the day and reminded not to talk to each other or anyone else about the trial and to return in two days for the third phase of the experiment.

### 2.5.3. Third Phase

Two days after viewing the trial the mock-juror participants were given the following instructions: "During the first phase of the study you may have read crime stories related to the trial that you viewed during phase 2. Like actual jurors you are not to use any of this prior information when making decisions about the defendant's guilt. For this decision you must only use the evidence presented at trial." Each juror then provided an individual pre-deliberation verdict and verdict confidence rating. After these verdict forms were collected, jurors were told that they had 30 minutes to deliberate and decide on unanimous group verdict. They were given a jury verdict form that included space for a group verdict and confidence rating. The experimenter left the room and returned five minutes prior to the end of the deliberations. If the jury had not reached a unanimous decision at that time they were instructed to try their best to do so within the next 5 minutes. After deliberations, jurors were asked individually to provide verdicts and confidence ratings one final time. The 29 mock-jury deliberations were recorded using a high-resolution digital video camera. These videos were content analyzed using the procedures below<sup>1</sup>.

<sup>1</sup> A delay was initiated between the trial viewing and deliberations in an attempt to increase ecological validity over that of previous jury deliberation studies [e.g., 9 and 33]. Litras and Golmant's [35] review of juror utilization in US District Courts found that during 2002 the average length of criminal trials ranged from 2.2 to 12.3 days, with an average length of 4.3 days. Consequently, in actual trials there will be a delay between evidence presented early during

## 2.6. Content Analysis

Our coding scheme is a modification of the one used by Shestowsky and Horowitz in Study 1 [9, see their Table 3] to measure juror behavior during mock-jury deliberations. Our modification involved developing our own unique coding manual that included the following information for each behavior coded: synonyms/definitional words, antonyms, examples of behaviors, and examples of statements (see Appendix B).

During approximately three weeks of training, three coders, who were naïve to our research hypotheses and conditions, were taught to code the jury deliberation videos using the coding scheme and manual. All coders then coded the same practice tapes taken from a similar study. This involved providing ratings of each juror (1 = strongly disagree to 7 = strongly agree) on all behaviors (see Table 3 for behavior coded). The codings of these trainees' were compared to the trainer's coding and disagreements were discussed during training meetings. Once reliability analyses indicated overall inter-rater agreement of at least .75 for all 3 coders, each coder was assigned between 19 and 20 videotaped jury deliberations to code.

Interclass correlations (ICC) were calculated for *each* of the coded behaviors; this is referred to as *category by category* reliability [36]). Inter-rater agreement was moderate to high for all coded behaviors (ICCs ranged from .71 to .93,  $M = .88$ ). Mean ratings for each coded behavior were used in our ANOVAs.

## 3. Results

### 3.1. Statistical Analyses

The alpha level for significance was set at .05. Hypotheses involving pre-deliberation and jury *verdicts* were tested with 2 (PTP: N-PTP or non-exposed) x 2 (NC: high or low) Loglinear ANOVAs, which use the test statistic chi-square rather than F-tests, while GLM ANOVAs were used for their associated *guilt ratings*. Effect sizes are reported as omega squared ( $\omega^2$ ) for F-tests and as Cramer's V for chi-square tests associated with the Loglinear ANOVAs.

The *post-deliberation* individual *verdicts* were analyzed with logistic Hierarchical Linear Modeling (HLM; SAS Proc Glimmix), along with procedures for estimating multilevel models [37-39]. We found that the model including both level-1 (juror-level) and level-2 (jury-level) variables fit these data best. The specific model used is referred to as "An Intercepts and Slopes-as-Outcomes Model" by Raudenbush and Bryk [38, p. 80]. The single equation representation of this model is presented below

trial and jury deliberations. This delay may affect what evidence is discussed and participation of individual jury members during deliberations.

**Table 1.** Individual Verdict Frequencies and Percentages and Guilt Rating Means and Standard Deviation

Guilt Measure	PTP Condition		NC condition		PTP x NC Condition			
	Nonexp	N-PTP	L-NC	H-NC	Nonexp x L-NC	Nonexp x H-NC	N-PTP x L-NC	N-PTP x H-NC
Pre-deliberation Individual Verdicts and Guilt Rating								
Guilty Verdict	42 (52%)	71 (81%)	55 (69%)	58 (65%)	18 (47%)	24 (56%)	37 (88%)	34 (74%)
Guilt Rating	7.93 (4.65)	11.20 (3.55)	9.86 (4.49)	9.43 (4.37)	7.55 (4.74)	8.26 (4.60)	11.95 (3.01)	10.52 (3.89)
Post-deliberation Individual Verdicts and Guilt Ratings								
Guilty Verdict	26 (32%)	67 (76%)	44 (55%)	49 (55%)	9 (24%)	17 (40%)	35 (83%)	32 (70%)
Guilt Rating	6.68 (4.08)	10.80 (3.42)	8.91 (4.49)	8.74 (4.08)	5.87 (3.71)	7.40 (4.29)	11.67 (3.18)	10.00 (3.47)

Note. N-PTP = negative pretrial publicity, Nonexp = no PTP, L-NC = low need for cognition, H-NC = high need for cognition. Row percentages for guilty verdicts appear in parentheses. Guilt ratings ranged from 1 (not guilty and completely confident) to 14 (guilty and completely confident) and standard deviations appear in parentheses next to their respective means.

$$Y_{ij} = \gamma_{00} + \gamma_{01}JuryNCCentered_j + \gamma_{02}PTP_j + \gamma_{10}(NC_{ij} - N\bar{C}_j) + \gamma_{11}JuryNCCentered_j(NC_{ij} - N\bar{C}_j) + \gamma_{12}PTP_j(NC_{ij} - N\bar{C}_j) + u_{0j} + u_{1j}(NC_{ij} - N\bar{C}_j) + r_{ij}$$

In this model, PTP was entered as a fixed effect (dummy coded: non-exposed = 0 and N-PTP = 1), individual juror NC ratings (low = 1 and high = 2) as both fixed and random effects, and jury membership and jury centered NC scores (mean NC rating for each jury centered at the grand mean = 0) as a random effect. For ease of interpretation of these analyses, verdicts were recoded so that not guilty = 1 and guilty = 2.

The post-deliberation individual guilt ratings and juror deliberation behaviors also have a hierarchical structure and these data were analyzed using 2 (PTP: N-PTP or non-exposed) x 2 (NC: high or low) Hierarchical ANOVAs with jurors nested within juries. The nested error term was used for all analyses, regardless of significance level ( $F = MS_{effect} / MS_{jurors(juries)}$ ).

### 3.2. Hypotheses 1 and 2: Guilt Measures

A 2 x 2 Loglinear ANOVA (verdicts) and GLM ANOVA (guilt ratings) revealed that prior to deliberations, N-PTP jurors were significantly more likely than non-exposed jurors to vote guilty and have higher guilt ratings (see the top panel of Table 1),  $\chi^2(1, N = 169) = 15.74, V = .31, F(1, 165) = 27.79, MSE = 16.81, \omega^2 = .18, ps < .01$ . Contrary to our expectations, there was not a significant main effect of NC or a significant PTP x NC interaction on pre-deliberation verdicts or guilt ratings,  $\chi^2s(1, N = 169) = 0.71$  and  $3.13, Fs(1, 165) = 0.33$  and  $2.85, MSE = 16.81, ps > .08$ . One-way ANOVAs (Loglinear and GLM) revealed that there was a significant effect of PTP on jury verdicts and guilt ratings,  $\chi^2(1, N = 29) = 8.39, V = .56, F(1, 27) = 11.27, MSE = 10.85, \omega^2 = .26, ps < .01$ . Juries exposed to N-PTP were more likely to vote guilty and have higher guilt ratings than non-exposed juries (see Table 2)<sup>2</sup>.

A fixed effects Logistic HLM, with jurors nested within juries, was performed to assess the effect of PTP and NC on post-deliberation individual verdicts (see second panel of Table 1). The first model tested was the one-way ANOVA model with random effects [38], and was used to explore how much the juries varied in their individual post-deliberation verdicts. This model is represented in the following equation:  $Verdict_{ij} = \gamma_{00} + u_{0j} + r_{ij}$ . The effect of jury was significant,  $\tau_{00} = 5.92, SE = 2.26, z = 2.62, p = .009$ . The intraclass correlation for the effect of jury on verdict was calculated using the following formula:  $\hat{p} = (\hat{\tau}_{00}^2) / (\hat{\tau}_{00}^2 + 3.29) = (5.92) / (5.92 + 3.29) = .64$  [40], indicating that 64% of the variance in juror verdicts is attributable to jury characteristics.

**Table 2.** Frequency Counts and Percentages for Group Verdicts and Means and Standard Deviation for Guilt Ratings

Condition	Verdicts			Guilt Ratings
	Not Guilty	Hung	Guilty	
N-PTP	2 (13%)	4 (27%)	9 (60%)	10.47 (3.34)
Nonexp	9 (64%)	3 (21%)	2 (14%)	6.36 (3.25)
Total	11 (38%)	7 (24%)	11 (38%)	N/A

Note. N-PTP = negative pretrial publicity, Nonexp = no PTP. Row percentages for verdicts appear in parentheses next to their respective frequencies. Guilt ratings ranged from 1 (not guilty and completely confident) to 14 (guilty and completely confident) and standard deviation appear in parentheses next to their respective means.

Given the results above, logistic HLM analyses were deemed appropriate for post-deliberation individual verdicts. We used a model that included both juror-level and jury-level predictors and is consistent with Raudenbush and Bryk's [38] intercepts and slopes-as-outcomes model (see the statistical analysis section above). The intercept for verdicts was not significant,  $\hat{\gamma}_{00} = 1.04, SE = 1.17, t(27) = 0.89, p = .38, 95\% CI [-1.35, 3.43]$ . The fixed effects of PTP and the PTP x deliberation interaction were significant,

juries exposed to N-PTP being more likely to vote guilty (82% vs. 19%) and have higher guilt ratings ( $Ms = 11.00$  vs.  $6.00, SDs 3.77$  and  $3.55$ , respectively) than non-exposed juries,  $\chi^2(1, N = 22) = 8.91, V = .64, F(1, 20) = 11.27, MSE = 10.86, \omega^2 = .30, ps < .01$ .

<sup>2</sup> The jury verdict and guilt rating analyses were also run without the hung juries. In this reduced sample there were 11 non-exposed and 11 N-PTP exposed juries. The outcome of these analyses was the same as that for all 29 juries, with

$\hat{\gamma}_{01} = -3.24$  and  $\hat{\gamma}_{12} = 2.69$ ,  $SEs = 1.12$  and  $1.10$ ,  $ts(27) = -2.90$  and  $2.42$ ,  $ps = .007$  and  $.02$ , 95% CIs  $[-5.53, -0.95]$  and  $[0.53, 4.86]$ . The significant interaction indicates that the intercepts and the slopes for verdicts, as a function of NC, are different for N-PTP and non-exposed jurors. When jurors were exposed to N-PTP, high NCs were less likely to vote guilty than low NCs (see bottom panel of Table 1), suggesting that NC had a corrective function on juror bias. In contrast, for non-exposed jurors high NCs were almost twice as likely to vote guilty as low NCs. Once again the intraclass correlation was calculated using the formula,  $\hat{\rho} = (\hat{\tau}_{00}^2)/(\hat{\tau}_{00}^2 + 3.29) = (6.26)/(6.26 + 3.29) = .67$ .

In order to examine the effect of PTP and NC on post-deliberation individual guilt ratings, a 2 (PTP) x 2 (NC) Hierarchical ANOVA was conducted, with jurors nested within juries. Only PTP had a significant effect on post-deliberation guilt ratings,  $F(1, 29) = 13.15$ ,  $MSE =$

$54.32$ ,  $\omega^2 = .21$ ,  $p = .001$ . As can be seen in the bottom panel of Table 1, jurors exposed to N-PTP had higher guilt ratings than those not exposed to PTP. While the association between NC and guilt ratings, as a function of PTP status, appears similar for guilt ratings as for verdicts, the PTP x NC interaction was not significant,  $F(1, 29) = 1.97$ ,  $MSE = 54.32$ ,  $p = .17$ .

The above results suggest that N-PTP jurors high in NC were able to partially correct for PTP bias in their verdicts, but this same correction was not observed for guilt ratings. The relationship between NC and verdicts was negative for N-PTP jurors and positive for non-exposed jurors. These post-deliberation differences may be the result of differences in NCs' influence on juror deliberation behavior as a function of PTP exposure, and is explored below.

**Table 3.** Jury Deliberation Behaviors: Main Effects of PTP Exposure and Need for Cognition

Coded Behavior	NC			PTP F (1, 29)	Non-exposed	N-PTP
	F (1, 29)	Low NC	High NC			
Assertive	4.33* (.02)	4.54 (1.81)	5.07 (1.67)	0.74	4.94 (1.67)	4.72 (1.84)
Passive	6.79* (.03)	3.66 (1.97)	2.91 (1.87)	2.77	3.01 (1.82)	3.49 (2.05)
Logical Arguments	1.21	5.27 (0.93)	5.46 (1.02)	0.01	5.38 (0.87)	5.36 (1.08)
Strong Arguments	1.46	4.66 (1.54)	5.01 (1.51)	0.17	4.91 (1.38)	4.78 (1.66)
Leadership	4.41* (.02)	3.66 (1.84)	4.26(2.04)	0.23	3.91 (1.90)	4.04 (2.03)
Persuade Attempts	2.08	4.12 (1.91)	4.67 (2.03)	0.06	4.36 (1.87)	4.45 (2.09)
Influence Verdict	1.00	3.70 (1.89)	4.01 (1.92)	0.76	4.01 (1.74)	3.73 (2.05)
Talk Time	28.69** (.05)	0.14 (.10)	0.19 (.12)	0.93	0.16 (.11)	0.17 (.12)

Note. \*  $p < .05$ . \*\*  $p < .01$ . ~  $p < .09$ . All F-tests and contrast test involved Hierarchical ANOVAs and used the following MS ratio:  $F = MS_{effect} / MS_{jurors(juries)}$ . The effect sizes (omega squared) are presented in parentheses by their respective F-values when  $p < .09$ . Mean ratings are based on the following scale: 1 = strongly disagree to 7 = strongly agree. Standard deviations are presented in parentheses next to their respective means. Talk time = the mean proportion of deliberation time that jurors spent talking about case-related information.

**Table 4.** Jury Deliberation Behaviors as a Function of PTP Exposure x Need for Cognition

Coded Behavior	PTP x NC F (1, 29)	N-PTP		NC contrast F (1, 29)	Non-exposed		NC contrast F (1, 29)
		Low NC	High NC		Low NC	High NC	
Assertive	5.91* (.03)	4.13 (1.94)	5.25 (1.59)	10.66** (.05)	5.00 (1.55)	4.88 (1.79)	0.69
Passive	6.15* (.03)	4.23 (2.02)	2.82 (1.84)	12.73** (.06)	3.01 (1.72)	3.01 (1.92)	0.82
Logical Arguments	3.38~ (.02)	5.11 (1.17)	5.58 (0.94)	3.91~ (.02)	5.45 (0.52)	5.31 (1.09)	0.46
Strong Arguments	2.12	4.39 (1.74)	5.14 (1.53)	4.22* (.03)	4.95 (1.26)	4.87 (1.50)	0.73
Leadership	6.73** (.03)	3.35 (1.97)	4.67(1.90)	10.98**(.05)	4.00 (1.64)	3.83 (2.11)	0.13
Persuade Attempts	0.36	4.05 (2.14)	4.83 (2.00)	1.93	4.20 (1.63)	4.51 (2.07)	0.15
Influence Verdict	4.29* (.02)	3.27 (2.12)	4.15 (1.91)	4.71* (.02)	4.17 (1.49)	3.86 (1.94)	0.11
Talk Time	22.39** (.04)	0.12 (.09)	0.22 (.13)	46.67* (.08)	0.16 (.11)	0.16 (.10)	0.01

Note. \*  $p < .05$ . \*\*  $p < .01$ . ~  $p < .09$ . All F-tests and contrast test involved Hierarchical ANOVAs and used the following MS ratio:  $F = MS_{effect} / MS_{jurors(juries)}$ . The effect sizes (omega squared) are presented in parentheses by their respective F-values when  $p < .09$ . Mean ratings are based on the following scale: 1 = strongly disagree to 7 = strongly agree. Standard deviations are presented in parentheses next to their respective means. Talk time = the mean proportion of deliberation time that jurors spent talking about case-related information.

### 3.3. Hypothesis 3: Agreement in Predeliberation Verdicts

We defined agreement in predeliberation verdicts as the percentage of jurors on each jury whose predeliberation verdicts were the same (e.g., if 4 out of 6 jurors voted guilty the agreement would be 67%). As expected, a one-way ANOVA revealed that non-exposed juries demonstrated a lower level of agreement prior to deliberations ( $M = 65\%$ ,  $SD = 11.44\%$ ) than N-PTP exposed juries ( $M = 82\%$ ,  $SD = 18.76\%$ ),  $F(1, 27) = 8.12$ ,  $MSE = 245.58$ ,  $p < .01$ ,  $\omega^2 = .20$ . This difference in jury consensus was expected to be an important situational variable affecting juror motivation and hence influencing the NC processing links. This was expected to lead to different juror behavioral outcomes for high and low NC jurors in the N-PTP and non-exposed conditions, which are explored in hypotheses 4 and 5 below.

### 3.4. Hypotheses 4 and 5: Juror Deliberation Behaviors

In order to examine the effect of PTP and NC on juror deliberation behavior, 2 (PTP)  $\times$  2 (NC) Hierarchical ANOVAs were conducted, with jurors nested within juries. The means, standard deviations, and F-values for these analyses are presented in Tables 3 (main effects) and 4 (interactions). As can be seen in Table 3, NC had a significant main effect on four of the juror deliberation behaviors (assertive, passive, leadership, and proportion of deliberation time spent talking), while PTP did not have a significant main effect on any of the behaviors examined.

The PTP  $\times$  NC interaction effects and their associated contrast tests are presented in Table 4, which shows a significant interaction effect on assertiveness, passiveness, leadership, influence on verdict, and talk time, while logical arguments approached significance ( $p = .08$ ). When exposed to N-PTP, jurors high in NC were rated significantly *higher* than low NC jurors on assertiveness, logical arguments, strong arguments, leadership, influence on verdicts, and significantly *lower* on passiveness (see Table 4). In addition, N-PTP jurors high in NC spent a greater proportion of the deliberation time talking than their low NC counterparts (see Table 4). Taken together these results suggests that N-PTP jurors high in NC were more active and had more influence on the jury deliberation process and its outcome (jury verdict) than N-PTP jurors low in NC. In contrast, as expected high- and low-NC jurors in the non-exposed condition did not significantly differ on any of the deliberation behaviors coded (see Table 4).

## 4. Discussion

The present study explored intrapersonal (juror decisions) and interpersonal (deliberation behavior) aspects of NC on decisions and behavior. We found that NC did not have a main effect on juror decisions. However, NC was found to interact with case a related variable (PTP) to influence both decisions and behaviors. Specifically, the effect of NC on juror verdicts and deliberation behavior depended on whether jurors were exposed to N-PTP.

In regards to interpersonal aspects of NC and its effects on deliberation behavior, NC status only mattered for jurors exposed to N-PTP, with high NCs talking more and being rated higher on assertiveness, logical arguments, strong arguments, leadership, influence on verdicts, and lower on passiveness. When jurors were not exposed to PTP, NC status did not significantly influence any of the juror deliberation behaviors coded.

Why should PTP exposure influence low NCs' participation in jury deliberations? Research exploring interpersonal aspects of NC demonstrates that high and low NCs behave differently in interpersonal settings, which is due to low NCs' propensity for social loafing [30]. Research and theory also suggests that differences in cognitive effort between high and low NCs can be reduced, or eliminated, in situations that increase individual motivation to perform (e.g., personal relevance or responsibility is increased; 17, 15, 41). Shestowsky and Horowitz [9] provide an example of how situational differences can influence behavior of low NCs in interpersonal settings. Specifically, they found that behavioral differences in high- and low-NCs observed in Study 1, were less pronounced (e.g., speaking time and argument recall), or opposite of what was expected (e.g., low NCs were more likely to change their positions when exposed to strong arguments), when in Study 2, individual accountability responsibility were increased. They accomplished this in Study 2 by requiring individuals to discuss their impressions of the case before discussing the evidence. This is an interesting finding, and applicable to the present study. For example, when there is low predeliberation consensus (non-exposed juries) all jurors may feel a heightened sense of responsibility to discuss their impressions of the case, and feel more accountable for the jury verdict. However, when predeliberation consensus is high (N-PTP juries), presenting one's impressions of the case is not necessary, given that the majority shares your views. Therefore, low NCs may feel free to socially loaf. Importantly, Henningsen and Henningsen (2004) found that high NCs can have a negative influence on group productivity, due to their tendency to encourage discussion of information that is already known to all members of the group. For juries with high predeliberation consensus, such behavior could increase social loafing in low NCs by signaling that new information is not valued or needed to reach group consensus. In summary, it appears that low-NC jurors do have the ability to participate actively in jury deliberations and make valuable contributions to them, but if not motivated to do so, they will socially loaf.

The finding that exposure to PTP led to less motivation perform in low-NCs may seem counterintuitive to some, who might feel that PTP exposure should lead to increased interest in a case and hence motivation to perform. This was thought to be unlikely due to the following factors: (1) their minds were already made up about the case during PTP exposure phase, (2) their knowledge that the verdict decision would be a group decision, (3) low-NCs tendency for social loafing, and (4) early into deliberations they would

realize that there was a high level of verdict consensus. Therefore, there would not be significant situational forces to increase low NCs motivation to perform. Of course, as Shestowsky and Horowitz (2004) suggested, situational factors that increase the accountability and personal responsibility of the low NC juror (e.g., judicial instructions focusing on the importance of individual contributions) could reduce or eliminate this observed social loafing.

Now we turn to the intrapersonal aspects of NC and its influence on juror decisions. Consistent with past research, PTP exposure had a main effect on juror and jury verdicts and guilt ratings. Jurors and juries exposed to N-PTP were more likely to vote guilty and provide higher guilt ratings than non-exposed jurors/juries. Also consistent with previous research, we found that while NC did not have a main effect on verdicts or guilt ratings, it did interact with an important case-related variable (PTP) to influence verdicts [8, 10-12]. Specifically, after deliberations N-PTP jurors high in NC were less likely to vote guilty than their low-NC counterparts. The opposite relationship was found for non-exposed jurors. These results are particularly interesting because they suggest that high-NC jurors exposed to PTP were motivated and able to at least partially correct for PTP bias, but their low-NC counterparts were not. These findings also suggests that if the courts can motivate jurors to be more cognitively active during trial presentation and jury deliberations this could reduce the impact of PTP on their decisions.

As mentioned above, high-NC jurors exposed to N-PTP were rated as more active and influential during deliberations than similarly exposed low-NC jurors. These results taken together with the verdict results suggest that high NCs tendency for greater bias correction and influence on jury deliberations could result in less biased jury verdicts. Although this is possible, research by Sommers and Kassin [12] suggests that the bias correction of high-NC jurors may be selective. Specifically, information deemed reliable and necessary to reach a "just" verdict will be used, whereas unreliable information will not be used. Sommers and Kassin define a "just" verdict as one that is accurate in regards to whether the defendant committed the crime and deserves punishment. According to Sommers and Kassin [12] jurors are largely motivated to come to a "just" verdict, "regardless of whether this decision conforms to the rules or evidence" (p. 1369). This may partially account for why we observed only a modest reduction in PTP bias on verdicts for high-NC jurors. That is, jurors may have viewed some of the information contained in the N-PTP as reliable, and therefore knowingly used it when rendering verdicts, even though they were admonished not to.

#### 4.1. Limitations and Future Directions

The current study, like all jury simulation research, is limited in that we used mock-jurors whose decisions would not impact an actual defendant and trial stimuli that was

considerably shorter than an actual trial (30 minutes), as were our jury deliberations (30 minutes). In addition, our mock-jurors consisted of college students and while some research suggests that the differences among college students and "community members" are trivial [42, 43], other researchers suggest that due to cognitive and attitudinal differences college student samples may not generalize well to jury eligible samples [44, 45]. These cognitive differences are relevant here given the focus on NC and the fact that for this student subsample of jury eligible adults the range of NC scores may be more restricted (although the range was quite large, 37 to 83) and the scores are likely higher than the general public [8], thus providing a conservative test of our NC hypotheses. Finally, we only looked at exposure to one type of PTP (negative) and therefore we do not know whether our results would generalize to positive (pro-defendant) PTP exposure. Depending on the amount and types (e.g., negative, positive, or mixture) of PTP surrounding a case, individual jurors may be exposed to different amounts or types of PTP, with some not being exposed to any PTP. This differential exposure obviously has the potential to affect the level of consensus at the beginning of the trial, and therefore could affect motivation to participate in deliberations.

## 5. Conclusions

Even with these limitations, the current research has important implications for the legal system and the understanding of the jury deliberation process. First, this research suggests that NC may interact with case related variables and under certain conditions (e.g., N-PTP exposure) to impact juror decisions and behavior. Second, it appears that high-NCs are capable of reducing the biasing effect of PTP on verdicts, which is an especially promising finding that deserves more research. Third, given that high-NCs jurors exposed to N-PTP spoke for almost twice as long during deliberations and were viewed as more assertive, influential, and providing stronger arguments than their low-NC counterparts, it is likely that they will have more influence on verdict decisions. Therefore, instead of being a collaborative decision among a group of people, the verdict decision could be the product of one or two high-NC jurors. Importantly, research and theory suggests unequal participation of high- and low-NC jurors may be reduced or eliminated if personal responsibility or perceived decision importance is increased [see 15 for review]. These are both plausible explanations for why our non-exposed jurors' deliberation behavior did not vary as a function of NC status and deserve further exploration. Increasing the perception of decision importance and individual responsibility could be accomplished through judicial instructions. Additional research is obviously needed to more fully understand NCs influence on both juror and jury behavior and decisions.

## Appendix A: Sample of Items from the News Stories

Negative PTP Facts	Unrelated News Stories
1. Dan remarried after Lise's death.	1. Renee Godshalk arrested for embezzling child support payments.
2. Dan drinking alcohol the night of Lise's death.	2. Exactly how much is missing is still undetermined, but it could be as much as \$84,000.
3. Dan said Lise wanted career over family.	3. Domestic relations wasn't balancing its checkbook on time; theft unnoticed.
4. Dan never showed remorse.	4. Checks were held for weeks, months, or years before depositing.
5. The couple often argued.	5. Godshalk took another \$54,493 under another.
6. Dan violent toward women in past	6. Mothers were complaining they weren't receiving checks; fathers had receipts.
7. Dan didn't administer CPR to Lise	7. A computer flaw also resulted in some people getting "duplicate checks.

Note. For *NJ v. Bias* Trial the defendant is Dan and the victim is Lise.

## Appendix B: Juror Behaviors Coded and Coding Manual Example

1. Assertive: The juror participated assertively during the deliberation process.
2. Passive: The juror participated passively during the deliberation process.
3. Logical/Valid Arguments: The juror presented logical (valid) arguments in favor of his/her opinions.
4. Strong Arguments: The juror presented strong arguments in favor of his/her opinions.
5. Leadership: The juror seemed to be a leader during the deliberations.
6. Persuasive Attempts: The juror tried to persuade others during the deliberation process.
7. Influence: This juror seemed to influence the other jurors with his or her arguments.
8. Time Talking: The amount of time each juror spent talking was coded/recorded in msec. The coding of juror talk time differed from that of the rest of the juror behavioral variables. Instead of using a scale to rate how talkative each jurors was, time talking was recorded using *The Observer Video-Pro* (Version 5.0; Noldus Information Technology, 2003). Then each jurors talk time was divided by the deliberation time resulting in the proportion of deliberation time each juror spent talking.

The coding manual consisted of definition of each coded variable along with synonyms/ definitional words, antonyms, and examples of behavior indicative of the construct. The coding manual information for Assertiveness is presented below:

*The juror participated assertively during the deliberation process.*

### Synonyms/Definitional Words

- Bold, forward, forceful, self-assured about speaking up, seems confident that his or her opinion deserves to be heard at least as much as anyone else's opinion, emphatic, firm, insistent.
- This construct *borders* on aggressiveness. However, if the person appears angry and uses threatening or demeaning language... then that would be aggressive and no longer what we are trying to measure (assertiveness).

### Antonyms

- Quiet, shy, unconfident about speaking one's opinion, inhibited, hesitant to voice one's opinion, timid.

### Examples of Behaviors that indicate assertiveness

- Repeatedly stating one's point of view.
- Butting in to express one's view.
- Butting in to finish speaking if someone else has butted in.
- Talking louder to finish speaking if someone is trying to butt in.
- Repeatedly taking the opportunity to speak as soon as someone else pauses (even when that person is not finished speaking) or as soon as someone finishes speaking (that is, making repeated attempts to insure that one's opinion is expressed and heard by others).

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