The Effects of Limiting Instructions about Emotional Evidence Depend on Need for Cognition

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Although limiting instructions are provided for specific evidence that may have a negative impact on jurors' decision-making, there may be individual differences in the effectiveness of the instructions. The individual predisposition towards the enjoyment of cognitive activity is called need for cognition (NFC), and individuals high in NFC tend to seek out and engage in cognitive activity spontaneously. The present study examined the influence of NFC and limiting instructions about emotional evidence on mock jurors' legal decision-making. The results showed that mock jurors who were lower in NFC were more likely to render a guilty decision than those higher in NFC, and that the tendency was more salient when the limiting instructions were presented compared with when they were not presented. Similar results were found in regard to sentencing decisions and arousal of anger. A partial mediation effect of anger was found between NFC and verdict decisions. The influence of NFC on the limiting instructions and legal decision-making as well as the effect of anger on the decision is discussed in relation to these results.

Key words: decision-making; emotional arousal; limiting instructions; mock juror; need for cognition.

Introduction

In criminal trials, jurors are presented with a large amount of information during the evidence examination in the culpability phase and must make a verdict decision based on this information. However, they might also consider extra-legal factors, such as hearsay evidence or emotions brought by witnesses when rendering a verdict. When specific information is perceived as extra-legal or inappropriate to be considered for the decision, admonitions – where jurors are cautioned to avoid letting this impact on their decisions – are delivered. Although this legal practice is intended to prevent jurors from considering this information in decisions, its effectiveness in ensuring that

jurors obey the judicial admonitions may vary. The present study focused on the effect of a predisposition towards need for cognition (NFC) – individual differences in the tendency to engage in and enjoy cognitive activity (Cacioppo & Petty, 1982) – on jurors' verdicts and sentencing decisions when limiting instructions with regard to emotional evidence are and are not presented.

Emotional Evidence

Although evidence that can induce emotions from jurors may not be extra-legal information itself, it may be problematic when the emotions induced by the information affect jurors' decisions, given that it is not relevant

to the defendant's culpability. In fact, a number of studies have demonstrated the influence of emotional information on jurors' decisions. For example, when photographs of a crime scene are gruesome, the conviction rate increases compared to cases where the photographs are not gruesome (Bright & Goodman-Delahunty, 2006; Douglas, Lyon, & Ogloff, 1997). Further, when the victim suffers more (e.g., legs paralysed vs bruise on face), jurors are found to become more emotional and place more blame on the defendant (Feigenson, Park, & Slovey, 2001).

The victim's characteristics also influence the jurors' tendency to blame the defendant, whereby harsher blame is placed on the defendant when the victim is more respectable compared with less respectable (Jones & Aronson, 1973). These characteristics may be provided in victim impact statements (VISs), which are usually presented by the victim's side during the sentencing phase. Along with the descriptions of the victim's characteristics, VISs include facts such as how much the victim and/or victim's family has suffered physically, economically, and psychologically as a result of the incident. A number of studies have shown that mock jurors who are exposed to VISs render harsher sentences than those who are not (ForsterLee, Fox, ForsterLee, & Ho, 2004; Greene, Koehring, & Quiat, 1998; McGowan & Myers, 2004). Although VISs are usually presented during the sentencing phase in capital trials in many countries, it has recently become common in the United States to present these in non-capital trials (Wevodau, Cramer, Clark, & Kehn, 2014). They are also presented during the culpability phase in Japan because the proceedings are not separated into two phases of culpability and sentencing, which implies that VISs may influence not only sentencing but also verdict decisions. Similarly, jurors can receive background information on the victim in the culpability phase (Logan, 1999). For example, prosecutors may describe the degree of harm the victim experienced or the circumstances of the victim's family after

the incident. Further, people who are close to the victim may become emotional on the witness stand when speaking about the victim. Therefore, jurors may receive affect-arousing information that is included in a VIS during the culpability phase, thus influencing their perception of the defendant's guilt as well as sentencing verdicts.

Limiting Instructions

Although it is impossible for the courts to remove all emotional factors and extra-legal information from jury trials, judicial systems aim to minimize their influence on jurors' decisions. Therefore, the courts provide jurors with limiting instructions, as necessary, to inform them to disregard or make limited use of prejudiced evidence. However, the effect of the limiting instructions is insufficient, as it is difficult for jurors to disregard evidence that has been presented (for a review, see Lieberman & Arndt, 2000). For example, when mock jurors were presented with the defendant's criminal record with a limiting instruction to disregard them, they were found to be unable to obey the instruction and convicted the defendant more often than those who were not presented with the criminal record (Greene & Dodge, 1995; Meredith & Brimacombe, 2010; Wissler & Saks, 1985), with similar results found for hearsay evidence (Schuller, 1995). Further, a number of studies have shown the ineffectiveness of limiting instructions in the context of pre-trial publicity, both for fact-based (i.e., information about the defendant, such as financial difficulties) and emotion-based (i.e., information to arouse negative emotions towards the defendant) pre-trial publicity (Edwards & Bryan, 1997; Kramer, Kerr, & Carroll, 1990; Ruva, Guenther, & Yarbrough, 2011).

The ineffectiveness of limiting instructions can be explained by the ironic processes of mental demand and cognitive effort (Lieberman & Arndt, 2000). The ironic processes theory, which was originally introduced by Wegner (1994), posits that there are two

types of processes required to achieve one's intended mental state: operating processes and monitoring processes. The operating system involves searching for information that is consistent with the intended mental state and suppressing information that is inconsistent, whereas the monitoring system tests whether the operating system is successful by ensuring that no distracters (inconsistent information) are processed. Given that the operating process requires cognitive effort, the monitoring process alone functions when the operating process is impeded due to mental demand. Consequently, the individual focuses on the distracters and fails to achieve the goal. Applying this theory to trial settings, although jurors may try to ignore information when they are instructed to do so by the court, their operating system is largely impeded due to the large amount of information presented in a trial. Accordingly, the monitoring process is the only one to function; therefore, jurors focus on information that should be ignored and may more likely consider evidence that they should disregard when making decisions.

The inability to suppress specific information may, however, depend on the individual. If the effectiveness of limiting instructions is reliant on cognitive effort to some degree, then there may be differences between individuals who put relatively more cognitive effort into a mental task and those who put relatively less. In this way, individuals can be classified high and low in NFC.

Need for Cognition (NFC)

NFC refers to the predisposition of an individual towards enjoyment from engaging in cognitive activity. Individuals who are high in NFC tend to seek out and evaluate information spontaneously to make sense of events, and enjoy thinking about and making cognitive effort to understand and solve problems. Individuals who are low in NFC, on the other hand, tend to rely on heuristic cues or others' opinions, rather than undertaking a careful evaluation of information (Cacioppo

& Petty, 1982). Therefore, individuals higher in NFC are more motivated and better able to engage in cognitive tasks (See, Petty, & Evans, 2009).

A number of studies have demonstrated differences in the behaviour of individuals who are high and low in NFC (Cacioppo, Petty, Kao, & Rodriguez, 1986; Cacioppo, Petty, & Morris, 1983; Haugtvedt, Petty, & Cacioppo, 1992). In one study, individuals high in NFC understood difficult assignments better than those low in NFC (Leone & Dalton, 1988). Numerous researchers have also reported that mock jurors who are high in NFC tend to examine evidence more carefully than mock jurors who are low in NFC do (Mancini, 2011; McAuliff & Kovera, 2008; Meredith & Brimacombe, 2010; Salerno & McCauley, 2009; Vinson, Costanzo, & Berger, 2008). Sommers and Kassin (2001) demonstrated the influence of NFC on limiting instructions for evidence of a wiretapped telephone conversation. Mock jurors in the admissible condition were instructed to take the evidence into account, whereas those in the inadmissible condition were told to disregard it. The results showed no difference in the conviction rate between the two conditions for mock jurors low in NFC, but there were differences for those who were high in NFC, whereby the conviction rate was higher in the admissible condition than in the inadmissible condition. This result suggests that the mock jurors high in NFC successfully obeyed the limiting instruction, in that those in the inadmissible condition disregarded the evidence when making their decision.

Although Sommers and Kassin (2001) observed a difference between high- and low-NFC jurors in relation to the tendency to obey limiting instructions for physical evidence, it is not yet known whether such differences also occur in regard to instructions for emotional evidence. Numerous studies have found that individuals who are low in NFC are more convinced by emotion-based messages and are directly influenced by affect, whereas individuals who are high in

NFC are more convinced by fact-based messages and their affect is mediated by their thoughts (Haddock, Maio, Arnold, & Huskinson, 2008; Lee & Thorson, 2009; Petty, Schumann, Richman, & Strathman, 1993; Vidrine, Simmons, & Brandon, 2007); thus, low-NFC jurors may experience more difficulty than high-NFC jurors in ignoring emotion-laden evidence when instructed to do so. Moreover, low-NFC jurors may perceive emotional information to an even greater extent when limiting instructions are presented, compared to when they are not presented. This is because they will have to monitor the warned information to suppress it, despite having a relatively weaker motive for engaging in the cognitive task while experiencing a large mental demand. This circumstance impedes their operating system; therefore, they may pay attention to the evidence that should be suppressed and unintentionally include it in their decision-making process. On the other hand, given that high-NFC individuals hold a relatively stronger motive towards making cognitive effort, it is assumed that they will be able to successfully obey limiting instructions with regard to emotional evidence. In sum, when they are given limiting instructions for emotional evidence about a victim, low-NFC jurors may attend to emotion-laden information to a greater extent due to a large mental demand and have relatively little motive to make cognitive effort, whereas high-NFC jurors may be able to successfully disregard the evidence when making decisions.

The Present Study

The present study presented a victim's background that includes emotional information in a trial transcript and investigated the functions of limiting instructions and NFC on mock jurors' verdict and sentencing decisions. Whereas many juror studies have used college students as mock jurors, the present study sourced participants from a non-student general population, all of whom are eligible

for jury duty. This will make the research results more ecologically valid for application to real-life settings and provide deeper insight into juror decision-making in the context of emotional information.

The mock trial transcript about a murder case is adopted from Matsuo and Itoh (2016), who investigated the effects of emotional testimony and gruesome photographs. The evidence included in the transcript is not strong enough to convict the defendant – in fact, without any juror instructions, it brought about a 46.00% of the conviction rate when no emotional evidence was included in the transcript; however, this figure increased to 71.43% when the testimony by the victim's father was included. Therefore, as the transcript includes the limiting instructions to disregard emotional information about the victim's background, the present study investigated the effect of the limiting instructions on the decisions of jurors with high versus low NFC.

The present study prepared three levels of juror instructions: the full-instructions condition included four basic juror instructions, with a limiting instruction about disregarding emotional information; the general-instructions condition included only the basic instructions; and the no-instructions condition gave no instructions at all. The two main predictions regarding the verdict decision were as follows: (1) there would be a relationship between NFC and verdict decisions, in that guilty decisions would be less common among jurors with a high level of NFC, and (2) there would be an interaction between NFC and juror instructions, such that the influence of NFC on verdict decisions is greater when the limiting instruction is given compared with when it is not given. Further, mock jurors who are high in NFC would be less likely to take into account emotional information relating to the victim when making a verdict decision compared to jurors who are low in NFC. No specific predictions regarding sentencing decisions were set, given that the mock jurors in this study did not receive any instructions in that regard.

Method

Participants

Participants consisted of 150 (78 males, 72 females) individuals who lived and/or worked in the Tokyo area ages between 20 and 70 years ($M = 46.94$, $SD = 13.42$), of whom 48% were full-time workers, 25% were part-time workers, 17% were homemakers, 3% were unemployed, and 7% stated their occupation as 'other'. Participants' educational levels were as follows: 4% are junior high school graduates, 27% are high school graduates, 51% are college and/or higher education graduates, and 18% stated their educational level as 'other'. Participants received a monetary reward for their participation.

Design

The experiment consisted of one continuous variable (NFC) and one categorical variable with three levels (instructions: full, general, none) in a between-subjects design. Participants were randomly assigned to one of the three instruction conditions, and the experiment was conducted with between 1 and 10 participants at a time.

Materials and Measures

The Need for Cognition Scale (NCS)

The present study employed the Japanese version of the Need for Cognition Scale (NCS; Kouyama & Fujihara, 1991), which is based on the original NCS (Cacioppo & Petty, 1982). The Japanese NCS contains 15 items to assess individuals' cognitive styles – for example, 'I tend to set goals that can be accomplished only by expending considerable mental effort' and 'I find it especially satisfying to complete an important task that required a lot of thinking and mental effort'. Participants respond on a 7-point Likert scale (1 = *not at all*, 7 = *extremely*).

The Juror Negative Affect Scale (JUNAS)

The Juror Negative Affect Scale (JUNAS) was originally developed by Bright and Goodman-Delahunty (2006) to measure mock jurors' negative affect. It consists of 30 adjectives categorized into four subscales (anger, fear/anxiety, disgust, and sadness), which were listed randomly across two pages in this study. The adjectives were translated into Japanese by three English–Japanese bilinguals individually, before being compared and chosen for the questionnaire. The response scale was modified from a 5-point to a 7-point Likert scale (1 = *not at all*, 4 = *neutral*, 7 = *extremely*) for more precise assessment of participants' negative affect.

Juror Instructions

Given that several studies have pointed out the limited effectiveness of juror instructions due to difficulty with comprehension – and given that others have reported that the effect of juror instructions depends on the timing of presentation, whereby pre-trial instructions are more effective than post-trial instructions – the present study provided mock jurors with both pre- and post-trial instructions in simple everyday language to maximize comprehension (Bourgeois, Horowitz, ForsterLee, & Grahe, 1995; Cush & Goodman-Delahunty, 2006; Ellsworth, 1989; Finkelstein & Bastounis, 2010; Rector, Bagby, & Nicholson, 1993; Smith, 1991).

Four basic general instructions were selected from description examples in the 39th code of lay judges, which was created by the Japanese Ministry of Justice. The instructions are as follows: (1) the defendant is assumed to be innocent until a guilty verdict is rendered (presumption of innocence); (2) the defendant is not guilty if lay judges are uncertain at the end of the trial whether or not he or she committed the crime (proof beyond a reasonable doubt); (3) prosecutors have to prove the facts beyond a reasonable doubt (the burden of proof is on the

prosecutors); and (4) the facts must be assessed based only on the evidence presented during the examination phase of the trial (principle of adjudication based on evidence). These instructions were provided to participants in the general-instructions condition. The following limiting instruction about emotional evidence was provided to participants in the full-instructions condition, along with the four general instructions above: statements and/or emotions conveyed by the victim's family are not evidence that proves whether or not the defendant committed the crime; therefore, lay judges cannot employ these to make a verdict decision. The instructions were audio-recorded by a female narrator and played on speakers. The instructions were also projected on a screen in front of participants as they were listening.

Trial Transcript

A mock trial transcript about a murder case was adopted (Matsuo & Itoh, 2016). The prosecutor claimed that a male homeless defendant had randomly chosen a female student to murder in order to go to prison and receive a reliable source of food and shelter, while the defendant denied his involvement. The evidence that the prosecutor presented was all situational, such as an eyewitness who saw him in dim lightning near the murder scene and dirt that was found on his pants containing similar components to that found at the murder scene, whereas no critical evidence, including physical evidence, was provided as proof of the crime. Therefore, it was assumed that the defendant would not be found guilty if the juror instructions were followed appropriately. After all the evidence was presented, the victim's sister expressed how awful she felt because she lost her sister and also described the victim's characteristics, such as her friendly and hardworking nature, along with her schedule on the day of the incident. The transcript was about 23 minutes long and was audio-recorded by a male narrator, except for the emotional

evidence part. As with the instructions, the transcript was played on speakers and also projected on a screen in front of participants as they were listening.

Post-Trial Questionnaire

Participants responded to several questions regarding the trial, such as their decision on a verdict and their recommended sentencing when a guilty verdict was rendered. Several ranges of sentencing were provided: 1–5 years, 6–10 years, 11–20 years, 21–30 years, 31–40 years, life sentence, and death. Participants also rated the sufficiency of the prosecutor's evidence on a 10-point scale (1 = *extremely weak*, 10 = *extremely strong*). For the questions about sympathy for the victim and anger towards the defendant, responses were given on a 7-point scale (1 = *not at all*, 4 = *neutral*, 7 = *extremely*). Finally, participants listed what evidence they had taken into account when making their verdict decision by checking the relevant box next to the keywords representing each source.

Procedure

After signing the consent form, participants completed the NCS and then responded to the pre-trial JUNAS. Participants were instructed to play the role of lay judges, and were given either the general and limiting instructions (full-instructions condition), the general instructions only (general-instructions condition), or no instructions (no-instructions condition). All participants then listened to the trial transcript as well as the victim's background emotional evidence at the end of the trial. The same trial instructions were repeated after the trial for participants in the full-instructions and general-instructions conditions. Afterwards, participants responded to the post-trial JUNAS, in which the words were listed in a different order to that used in the pre-trial version, and then completed the post-trial questionnaire. At the end of the

experiment, participants were debriefed and thanked.

Results

Need for Cognition (NFC)

The NCS score for participants ranged from 42 to 95 ($M = 66.83$, $SD = 11.88$, $Mdn = 66$, Cronbach's $\alpha = .88$). The range within each condition was 42–93 ($M = 67.80$, $SD = 12.15$) for the full-instructions condition, 46–92 ($M = 67.42$, $SD = 11.44$) for the general-instructions condition, and 45–95 ($M = 65.26$, $SD = 12.11$) for the no-instructions condition. A one-way between-subjects analysis of variance (ANOVA) indicated no significant difference among the three conditions, $F(2, 147) = 0.66$, $p = .52$.

Negative Emotions before and after the Trial Transcript

A comparison of pre-trial ($M = 1.82$, $SD = 0.88$, Cronbach's $\alpha = .97$) and post-trial ($M = 2.99$, $SD = 1.44$, Cronbach's $\alpha = .98$) scores revealed a significant difference, $t(149) = -10.23$, $p < .001$, Cohen's $d = .98$, suggesting that the trial transcript increased participants' negative affect.

Verdict Decisions

Overall, 96 participants rendered a guilty verdict and 54 participants rendered a not guilty verdict. Logistic regression analyses showed significant differences for NFC, $\chi^2(1, n = 150) = 10.03$, $p = .002$, $\hat{v} = .26$, but not for instructions, $\chi^2(2, n = 150) = 0.94$, $p = .63$ (guilty = 32 and not guilty = 18 for the full-instructions condition; guilty = 30 and not guilty = 20 for the general-instructions condition; guilty = 34 and not guilty = 16 for the no-instructions condition). There was no significant interaction between NFC and instructions, $\chi^2(2, n = 150) = 0.93$, $p = .63$, in relation to guilty decisions. Results from separate logistic regression analyses within each instructions

condition showed that NFC was a significant predictor of verdict decision in the full-instructions condition, $\chi^2(1, n = 50) = 7.28$, $p = .007$, $\hat{v} = .22$ ($B = -.07$, Wald $\theta = 6.18$, $p = .013$), but not in the general-instructions condition, $\chi^2(1, n = 50) = 2.44$, $p = .12$ ($B = -.04$, Wald $\theta = 2.29$, $p = .13$), and no-instructions condition, $\chi^2(1, n = 50) = 2.11$, $p = .15$ ($B = -.04$, Wald $\theta = 2.05$, $p = .15$) conditions (see Table 1).

To analyse participants' perception of the sufficiency of the prosecutor's evidence, multiple linear regression analyses were conducted. The instructions variables were dummy-coded based on a reference group of the general-instructions condition; therefore, dummy full-instructions and no-instructions were created. NFC scores were also

Table 1. Stem-and-Leaf Plots: Need for Cognition for Guilty (right) and Not Guilty (left) Decisions in Each Instructions Condition.

Not Guilty		Guilty
Leaves	Stem	Leaves
Full instructions		
4	4	2
7	5	3555666677899
950	6	003344677
99877610	7	244568
7321	8	2
3	9	12
General instructions		
7	4	69
11	5	012357789
99997	6	0244699
87332110	7	011222379
6330	8	2
	9	02
No instructions		
	4	58
4	5	0122334566777889
766654420	6	1133688
8440	7	1369
2	8	148
0	9	35

Note. 5 |6| = 65, |8| 3 = 83.

standardized to reduce multi-collinearity (Kühl, Eitel, Damnik, & Körmde, 2014). Two interaction terms were developed by multiplying the standardized NFC and dummy full-instructions as well as the standardized NFC and dummy no-instructions. The main effects were reported from the variables included in the first analysis and the interactions included in the second analysis. The first analysis included the two types of dummy-coded instructions and the standardized NFC as predictors. The result for the main effects was significant, $R^2 = .07$, $F(3, 146) = 3.41$, $p = .019$, $\eta^2 = .07$, but not for the dummy full-instructions and no-instructions, $B = .24$, $\beta = .04$, $p = .64$ and $B = .93$, $\beta = .17$, $p = .07$, respectively. The standardized NFC was a significant predictor, $B = -.04$, $\beta = -.19$, $t(149) = -2.39$, $p = .018$, indicating that as the score on the standardized NFC increased by one point, the perception of the evidence sufficiency decreased by .19. The second analysis to test the interaction when controlling for the standardized NFC and the dummy-coded instructions revealed no significance, $\Delta R^2 = .03$, $F(2, 144) = 2.05$, $p = .13$. The interactions between the standardized NFC and the dummy full-instructions and between the standardized NFC and the dummy no-instructions were not significant predictors of the perception for the evidence sufficiency, $B = -.04$, $\beta = -.10$, $p = .41$ and $B = .05$, $\beta = .13$, $p = .26$, respectively. The means and SDs of each instructions condition are shown in Table 2.

Frequency of Referring to the Emotional Evidence in Verdict Decisions

Among all 150 participants, 26 (17.33%) took into account the emotional evidence when

making a verdict decision. Of these, 23 participants rendered guilty decisions while 3 (1 in each instructions condition) rendered a not guilty verdict. In terms of instructions conditions, 9 participants in the full-instructions condition, 6 in the general-instructions condition, and 11 in the no-instructions condition reported that they had considered the emotional evidence when making a verdict decision. Analyses of logistic regression revealed no significant differences among conditions, $\chi^2(2, n = 150) = 3.46$, $p = .18$, on the use of the emotional evidence, but there was a significant difference by level of NFC, $\chi^2(1, n = 150) = 5.56$, $p = .02$, $\hat{v} = .19$. There was no interaction between instructions conditions and NFC, $\chi^2(2, n = 150) = 3.17$, $p = .21$. Results from the logistic regression within each condition were as follows: NFC is significant within the full-instructions condition, $\chi^2(1, n = 50) = 9.33$, $p = .002$, $\hat{v} = .43$ ($B = -.12$, Wald $\theta = 6.03$, $p = .014$), such that participants with higher NFC were less likely to refer to the emotional evidence when rendering a verdict decision. However, NFC was not significant within the general-instructions condition, $\chi^2(1, n = 50) = 0.16$, $p = .69$ ($B = -.02$, Wald $\theta = .16$, $p = .69$), and the no-instructions condition, $\chi^2(1, n = 50) = 0.93$, $p = .34$ ($B = -.03$, Wald $\theta = .86$, $p = .36$). These results suggest that mock jurors who were lower in NFC refer to the emotional evidence to a greater extent than those who were higher in NFC, with this tendency being more salient when the limiting instruction about the emotional information was given.

Sentencing Decisions

Five levels of recommended years of imprisonment were collapsed to one level;

Table 2. Means (SDs) for each instructions condition for perception of sufficiency of prosecutor's evidence.

Full instructions	General instructions	No instructions	Total
5.50 (2.72)	5.28 (2.52)	6.30 (2.47)	5.69 (2.59)

therefore, three levels of sentencing (years, life, and death) were analysed. Given that the dependent variable was a nominal variable with three levels, a chi-square analysis was conducted. To this end, 96 participants who rendered guilty verdicts were classified as either high- or low-NFC, based on the median score of 61.50 ($M = 64.43$, $SD = 11.99$). There were 16 high-NFC and 16 low-NFC participants in the full-instructions condition, 18 high-NFC and 12 low-NFC participants in the general-instructions condition, and 14 high-NFC and 20 low-NFC participants in the no-instructions condition. The chi-square analyses showed no main effect of NFC, $\chi^2(2, n = 96) = 3.13$, $p = .21$, or instructions, $\chi^2(4, n = 96) = 2.47$, $p = .65$. Elaboration analyses of chi-square tests showed no significant differences in sentencing decisions between high- and low-NFC participants in the general-instructions condition, $\chi^2(2, n = 96) = 3.78$, $p = .15$, and the no-instructions condition, $\chi^2(2, n = 96) = 1.08$, $p = .58$, but there was a significant difference in the full-instructions condition, $\chi^2(2, n = 96) = 6.35$, $p = .042$, $\hat{v} = .26$ (see Figure 1). Compared with high-NFC participants, those who were low in NFC rendered harsher sentencing decisions in the full-instructions condition, whereby 7 high-NFC participants demanded

some years of imprisonment and only 1 chose the death penalty, whereas 2 low-NFC participants chose some years of imprisonment and 6 chose the death penalty. A similar pattern appeared in the other instructions conditions, although no statistically significant differences were found between high- and low-NFC participants.

Emotions towards Defendant and Victim

To analyse the feelings of anger towards the defendant and the feelings of sympathy for the victim, multiple linear regression analyses were conducted by applying the same procedures for assessing the perception of the evidence sufficiency. The results of the first analysis for sympathy with the victim showed no statistically significant main effects of standardized NFC and dummy-coded instructions, $R^2 = .02$, $F(3, 146) = 1.10$, $p = .35$. The second analysis also showed no interactions of the standardized NFC and the dummy-coded instructions, $\Delta R^2 = .01$, $F(2, 144) = 0.52$, $p = .60$.

Results for feeling anger towards the defendant were significant for the standardized NFC and the dummy-coded instructions, $R^2 = .10$, $F(3, 146) = 5.14$, $p = .002$, $\eta^2 = .10$. The standardized NFC was a significant

Figure 1. Types of sentencing chosen by participants who rendered a guilty verdict.

Note: Full = full-instructions condition; General = general-instructions condition; NFC = need for cognition; No = no-instructions condition.

predictor ($B = -.03$, $\beta = -.21$, $p = .01$), suggesting that as the score on the standardized NFC increased by one point, the feeling of anger towards the defendant decreased by .21. The dummy no-instructions was not a significant predictor ($B = .08$, $\beta = .02$, $p = .80$), whereas the dummy full-instructions was significant ($B = .85$, $\beta = .25$, $p = .007$). The results indicated that there was no difference in the level of anger towards the defendant between mock jurors in the general-instructions and no-instructions conditions; however, participants in the full-instructions condition were angrier than those in the other two conditions. The second analysis to test the interaction revealed no significance, $\Delta R^2 = .001$, $F(2, 144) = 0.11$, $p = .90$. The interactions between the standardized NFC and the dummy full-instructions and between the standardized NFC and the dummy no-instructions were not significant for the feeling of anger ($B = -.01$, $\beta = -.04$, $p = .76$ and $B = .004$, $\beta = .02$, $p = .89$, respectively). The means and SDs of each instructions condition are shown in Table 3.

Mediation Analyses

Because there was a significant association between NFC and the verdict decision as well as NFC and the feeling of anger towards the defendant, it might be assumed that participants who felt anger tended to render a guilty verdict. To test this assumption, mediation analysis (Baron & Kenny, 1986) was conducted through multiple regression analyses to explore the function of anger in terms of the verdict decision. When NFC was entered as a predictor variable, it was found to be significant on the verdict decision ($B = -.05$, Wald $\theta = 10.27$, $p = .001$). NFC was also a significant predictor of the feeling of anger towards the defendant ($B = -.03$,

$t(148) = -2.42$, $p = .017$). When NFC and anger towards the defendant were entered together as predictor variables, the feeling of anger was significant ($B = 1.16$, Wald $\theta = 28.13$, $p < .001$), and NFC was also significant for the verdict decision ($B = -.04$, Wald $\theta = 5.60$, $p = .018$). The results revealed that the feeling of anger partially mediated the relationship between NFC and the verdict decision.

Discussion

The present study investigated the function of NFC and limiting instructions about emotional evidence on mock jurors' verdict decisions. The results showed a significant influence of NFC on the verdict decisions. Higher NFC was associated with fewer guilty verdicts being rendered. This might have occurred because people who were low in NFC did not devote enough attention to the content of the evidence in order to determine whether or not it proved the defendant's culpability. The significant influence of NFC on a guilty verdict occurred when limiting instructions were given, but not when they were not given, which suggested that limiting instructions were not equally effective for all jurors and may have in fact, generated the opposite effect than intended when dealing with certain types of individuals. When jurors tend to enjoy cognitive activity (i.e., they were high in NFC), they were more likely to obey instructions to disregard emotional information when making a verdict decision; therefore, the limiting instructions were effective and practical for jurors who were high in NFC. However, when jurors are not motivated to engage in cognitive activity spontaneously (i.e., they were low in NFC), the limiting instructions may not have been functional. Participants seemed to pay more attention to the information that they were

Table 3. Means (SDs) for each instructions condition for feelings of anger towards defendant.

Full instructions	General instructions	No instructions	Total
5.32 (1.66)	4.48 (1.62)	4.62 (1.43)	4.81 (1.60)

instructed to disregard and might have been persuaded emotionally by the nature of the information, using the emotional evidence as a heuristic cue and employing it in making a verdict decision. This implication was endorsed by the finding that participants who were lower in NFC were more likely to refer to the emotional evidence compared with those who were higher in NFC, with the tendency being more salient when the limiting instructions were presented compared with when they were not presented.

This phenomenon can be explained as a backfiring effect of limiting instructions by way of ironic processes (Lieberman & Arndt, 2000; Wegner, 1994). Given that mock jurors who were low in NFC load information to a greater extent, their operating processes no longer served to achieve the goal of the mental state, which is to disregard the emotional evidence for making a decision, and monitoring processes alone were used to focus on the emotional evidence as distracters. Consequently, they might have unintentionally taken the distracter into consideration for making their decision, especially because it was an emotional-based message with strong persuasive effects (Haddock et al., 2008). On the other hand, both the operating and monitoring processes seemed to be effective for participants who were high in NFC, which allowed them to monitor the distracter and successfully set it aside when making their decision; otherwise, the limiting instructions, which required participants to disregard certain information, might have threatened the freedom of low-NFC participants and influenced them to use the emotional evidence in making a verdict decision (Lenahan & O'Neill, 1981). If this is the case, then participants might recapture their freedom by ignoring the instructions; thus, the instructions actually became a driving force for regarding the emotional evidence (Cook, Arndt, & Lieberman, 2004). Another possible explanation for this result was that participants who were low in NFC may have noticed the evidence during the trial due to the limiting

instructions. However, given that individuals who were low in NFC tended not to evaluate information carefully, they might have remembered the instructions only superficially and, therefore, not have been able to recall the content of the instructions when it was time to render a verdict. Because the evidence provided by the victim's sister had an emotional impact, low-NFC participants might, therefore, have considered it as a factor in their verdict decisions.

Although NFC was not found to be associated with arousal of sympathy for the victim, there was a relationship between NFC and feelings of anger towards the defendant, whereby participants who were higher in NFC felt less anger than those who were lower in NFC. Further, participants in the full-instructions condition were angrier than those in the other conditions. Although no interaction between the instructions conditions and NFC was found for feelings of anger towards the defendant, the results seemed to have a similar pattern to those found for verdict decisions, the use of emotional evidence for making decisions, and sentencing decisions. This may have indicated that jurors who were low in NFC were more likely to convict the defendant and rendered a severe punishment because they focused on emotional evidence, which means that the limiting instruction guided them to do the opposite of its stated purpose. The behaviours observed might be due to not only the factor of NFC but also the arousal of anger, which caused individuals to make punitive judgements towards a target person (Lerner, Goldberg, & Tetlock, 1998). In fact, it was found that anger partially mediated the relationship between NFC and the verdict decision; thus, both low levels of NFC and high feelings of anger could have influenced legal decision-making.

A limitation of this study is that a questionnaire was used to assess participants' affect. Although the questionnaire was a common and useful technique for psychology studies, it was uncertain how well this

method demonstrated participants' affect, especially when this was assessed multiple times, including with the pre- and post-trial JUNAS measures.

The present study showed a beneficial effect of limiting instructions about emotional evidence only among the high-NFC individuals, whereas inappropriate outcomes were generated for both verdict decisions and feelings of anger among the low-NFC individuals. Although trial instructions should be made equally available to laypersons, the current results showed that they were efficient only in a limited population. Yet, it is undesirable and indeed impossible to pre-screen potential jurors in terms of their cognitive predisposition in real-world settings. Future research should thus explore how to increase spontaneous engagement in cognitive activities for individuals who are low in NFC. A jury consists of people with different backgrounds; therefore, it is important to make a lucid and intelligible law system for everyone.

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