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RUNNING HEAD: ANXIETY, HAPPINESS, AND STEREOTYPING

Don't be happy, worry: Positive mood, but not anxiety, increases stereotyping in a mock juror decision-making task.

Guy J. Curtis

Murdoch University

KEY WORDS: Anxiety, stereotyping, impression formation

Please address all correspondence concerning this article to Guy Curtis, School of Psychology, Murdoch University, 90 South St. Murdoch, Western Australia, 6150, Australia.

g.curtis@murdoch.edu.au, Ph: +61 8 9360 2268, fax: +61 8 9360 2253

ABSTRACT

Moods and emotions have the potential to influence the decisions made by jurors. Two theories predict that when people are anxious they will rely more on stereotypes when evaluating other people. However, research results have been equivocal as to whether anxiety increases the use of stereotypes in evaluations of other people. Study 1 (N = 127) and Study 2 (N = 279) used a juror decision-making task to examine whether anxiety would increase the application of stereotypes, and it did not. However, the same task in Study 3 (N = 195) detected increased stereotyping by happy participants. These findings support conclusions that anxiety may not increase stereotyping in social judgments to the extent previously believed. Because of this, there is little cause for worry on the part of those involved in the legal system that anxiety experienced by jurors will lead them to make biased judgments based on social stereotypes.

Keywords: anxiety, stereotypes, stereotyping, jury decision-making, happiness.

A number of studies have investigated the influence of moods and emotions on decision-making in legal contexts (e.g., Bright & Goodman-Delahunty, 2006; Semmler & Brewer, 2002). One effect of moods and emotions on jury decision-making, for which there is some evidence, is that various moods and emotions may increase the use of stereotypes among jurors. A consequence of the increased use of stereotypes is that jurors may be more likely to evaluate as guilty someone who is from a group that is stereotypically associated with a crime, for example, African-Americans and violent crime. Evidence suggests that jurors find the novelty and demands of a courtroom situation to be stressful and anxiety provoking (Bornstein, Miller, Nemeth, & Musil, 2005; Kaplan & Winget, 1992). A question that warrants empirical attention is whether anxiety increases the use of stereotypes in jurors' evaluations of defendants.

Two theories predict that anxiety will lead people to use stereotypes when evaluating others. The primary mechanism that these theories suggest would be responsible for increased stereotyping by anxious people is cognitive load (Fiske & Morling, 1996; Wilder, 1993). Specifically, Wilder suggested that because anxiety creates cognitive load (Darke, 1988; Easterbrook, 1959) there is an increased need to take advantage of the cognitive-processing advantage conferred by stereotypes (Macrae, Milne, & Bodenhausen, 1994). This theory has been called the anxiety-assimilation hypothesis, in that it suggests that anxiety should lead to an evaluation of an individual that assimilates them into the evaluation of their broader group (Wilder & Shapiro, 1989a, 1989b). Fiske and Morling concurred with this explanation of why anxiety might increase stereotyping. They added that anxiety may also increase stereotyping because anxiety increases people's motivation to feel in control, and other people are seen as more predictable, and therefore controllable, if they conform to stereotypes. In the time since these theories were published, it has become commonly accepted in social psychology literature that anxiety increases stereotyping (e.g.,

Bodenhausen, Todd, & Becker, 2007; Frey & Tropp, 2006). However, the evidence that anxiety increases stereotyping in evaluations of other people, when looked at closely, is not clear cut. Additionally, the most recent evidence suggests that anxiety may not always promote a reliance on stereotypes (Curtis & Locke, 2005, 2007).

In three studies, Curtis and Locke (2005, 2007) presented anxious and control participants with a description of a person that allowed them to form stereotypical and/or affect-congruent impressions of that person. In these studies, anxious participants did not show increased stereotyping of the target, but they did form affect-congruent impressions. Consistent with this, anxiety has been shown to direct attention to members of social groups with anxiety-congruent (i.e., negative) stereotypes (Horry, & Wright, 2009), which may indicate an affect-congruent rather than a stereotypic bias in person perception. Such results have prompted a reexamination of the research that formed the basis for theories suggesting that anxiety should increase stereotyping in social judgments. I will review this research briefly and explain how previous studies that have been taken as showing that anxiety increases stereotyping in social judgments do not, in fact, adequately test this proposition.

The theories developed to explain how anxiety will increase stereotyping stemmed from a series of six studies by Wilder and Shapiro (1989a, 1989b). In these studies, participants were presented with a video of debating speeches by a group of four people. Later, the participants were given a surprise impression-formation and recall task where they evaluated the third speaker in the debate, who was dissimilar to the other group members. Wilder and Shapiro found that anxiety was related to impressions of the atypical target that were more like the other group members and attribution of statements made by the other group members to the atypical target. Because anxiety seemingly led to the atypical target being assimilated into their broader group context in the minds of participants, Wilder and Shapiro proposed that anxiety would lead to increased use of group membership and

stereotypes in evaluations of others. However, it has been argued that Wilder and Shapiro's results may reflect an anxiety-related deficit in memory accuracy where participants confused one group member with the others (Curtis & Locke, 2005).

Stereotypes confer an information processing advantage because they are well-learned, widely shared, and highly-accessible associations about established social groups (Devine, 1989; Macrae et al., 1994). In Wilder and Shapiro's (1989a, 1989b) studies participants evaluated a member of a laboratory-formed group about whom they would not have a well-learned or accessible stereotype. Thus, there was no stereotype to provide an information-processing advantage. In contrast, it is likely that cognitive load imposed by anxiety may have caused participants to confuse "who said what" within a group of four impression-formation targets (Spears & Haslam, 1997). Therefore, inaccurate memory rather than stereotyping seems to be a more parsimonious explanation for their results. Supportive of this conclusion is a result, reported by Wilder and Shapiro themselves, that anxiety was related to a reduction in the overall amount of information recalled about the impression-formation target. Importantly, confusion of one person with another member of their group is extremely unlikely to happen in the minds of jurors faced with a single defendant.

Two studies employing an illusory-correlation methodology (Hamilton & Rose, 1980) have also suggested that anxiety increases stereotyping in social judgments (Baron, Inman, Kao, & Logan, 1992; Friedland, Keinan, & Tytun, 1999). In these studies, participants were presented with a list of traits about members of stereotyped groups. Later, participants attempted to recognize which traits they had, or had not, seen in the initial part of the study. Anxious participants were more likely to select stereotypic traits that had not previously been presented. As with Wilder and Shapiro's (1989a, 1989b) studies, these results were taken as showing that anxiety increased stereotyping in an evaluation of the target person. Again, however, these results appear to show that anxious participants' memory for the impression-

formation targets were inaccurate because judgments in this task essentially reflect recognition accuracy versus recognition error. Because of this, these results do not necessarily mean that participants applied stereotypes in their judgments or evaluations of the target.

In contrast to Wilder and Shapiro's (1989a, 1989b) results and the illusory-correlation studies, Hall and Crisp (2003) failed to find a significant difference in the stereotypicality of anxious and control participants' impressions. However, these researchers noted that the measures and low power ($N = 54$) were problems in their study (Hall & Crisp).

Furthermore, as noted, other studies have indicated that anxiety leads to more affect-congruent (i.e., negative and threatening) evaluations of an impression-formation target (Ciarrochi & Forgas, 1999; Curtis & Locke, 2005, 2007; Feshbach & Singer, 1957). In addition, these other studies tested evaluation of a target with methodologies that were unlikely to conflate evaluative judgments with memory inaccuracy. However, in one of these studies an affect-congruent judgment was indistinguishable from a stereotypic judgment – anxiety increasing negative evaluations of people from negatively stereotyped groups (Ciarrochi & Forgas, 1999). In addition, the study by Feshbach and Singer (1957) did not specifically manipulate or attempt to detect stereotyping. Moreover, the studies by Curtis and Locke presented a complex and atypical judgment target, which may have increased the need for participants to process information deeply, which, as noted by Forgas (1995) may have the ironic consequence of increasing-affect congruent bias in judgment – stereotyping may occur in more straightforward judgment situation.

As the review of studies above suggests, although two theories predict that anxiety increases stereotyping and these theories base that prediction on solid reasoning, no strong demonstration exists in the current empirical literature of anxiety increasing stereotype use in evaluations of others. Moreover, the theory that anxiety will increase the use of stereotypes in

evaluations of others has not been examined in a jury decision-making situation. Because previous studies have not clearly demonstrated an increase in stereotyping associated with anxiety in a juror decision-making situation, and have clear methodological weaknesses, the present study aimed to test the theory-driven hypothesis that anxiety would increase the use of stereotypes in evaluations of another person. Specifically, Studies 1 and 2 investigated whether anxiety would increase application of stereotypes in a juror decision-making task.

The juror decision-making task used in this research is a well-established methodology for examining stereotyping in a relatively straightforward social judgment situation (Bodenhausen & Lichtenstein, 1987). In this task, participants are presented with a vignette of a fictitious crime and they estimate the likelihood that the accused person is guilty. Half the participants see a vignette where the accused is from a group that is stereotypically associated with the offense. For example, the vignette may describe an assault with the accused named either John Garner or Juan Garcia – a Hispanic name – as Hispanics in the USA are stereotypically associated with assault (Bodenhausen, Kramer & Süsser, 1994). This task shows increased stereotyping when the accused from the stereotyped group is rated as significantly more likely to be guilty as compared with the accused from the group not stereotypically associated with the crime. Importantly, this task has been shown to be sensitive to the influence of moods, emotions, and arousal (Bodenhausen, 1990); with happiness (Bodenhausen, Kramer et al., 1994), anger (Bodenhausen, Sheppard, & Kramer, 1994), and disgust (Tiedens & Linton, 2001) increasing stereotyping in this task. Interestingly, Tiedens and Linton (2001) contrasted disgust with fear, and fear may be seen as similar to anxiety. However, although they found increased stereotyping in people experiencing disgust, as compared with fear, their study did not compare fear with a neutral mood condition, and, thus, it was unable to test whether fear elevated stereotyping above the amount that may be expected from people in a neutral-mood baseline condition. Moreover,

fear and anxiety are qualitatively and functionally different affective states (White & Depue, 1999), and thus previous research involving fear does not remove the need for the current research into anxiety.

STUDY 1

Method

Design and Participants

Anxiety was manipulated through threat of embarrassment in a public speaking task, which is a widely-used anxiety manipulation in comparable research (e.g., Ciarrochi & Forgas, 1999; Wilder & Shapiro, 1989b). After the anxiety manipulation, all participants were presented with a hypothetical legal case vignette where the defendant was from a group that was either stereotypically associated with the crime or not stereotypically associated with the crime. Thus, this experiment used a 2 (Affect: anxious vs. control) X 2 (Stereotype: present vs. absent) between-groups design. The main dependant measure was participants' rating of the likelihood that the defendant was guilty.

The participants were 132 students (30 male, 102 female) who received partial course credit in their introductory psychology course. Testing was completed in small groups of 10 to 15 participants, who made individual ratings in the mock-juror task without group discussion. Five participants were removed from the final dataset because they had guessed the purpose of the study, or failed to complete the guilt rating or state-anxiety measure. This left 127 participants (70 anxious, 57 neutral mood control; 29 male 98 female).

Measures and Procedure

Participants were told that they would be completing two unrelated tasks, a mock-juror task and a public-speaking evaluation. They were told that they would be allocated to present (anxiety-induction condition), or watch and evaluate (control condition), a speech

about “the part of their body they like the least, or were least happy with”. Once participants were allocated to the anxiety-induction or control conditions they were told that they would complete the mock juror task, before the public speaking task.

Participants were given one of two 1-page case summaries. Both cases involved charges of drug possession, with intent to sell the drug. In the stereotypical version of the scenario, the fictitious defendant had a Vietnamese name “Phan Nguyen” and his arrest was said to have taken place in the suburb of Cabramatta in Sydney Australia (participants were tested in Sydney, Australia), which has a high percentage of residents of Asian ethnicity, and is associated with drug-related crime. In the non-stereotypical version of the scenario, the defendant had a Caucasian name “Ben Howard” and his arrest was said to have taken place in the low-crime suburb of North Sydney.

After reading the scenario participants rated the accused person on several questions using an 11-point scale anchored with 0 (extremely weak/unlikely) to 10 (extremely strong/likely). The major rating of interest was “likelihood of guilt”. In addition, participants rated the strength of the case and the likelihood of recidivism. Additionally, participants made a recommendation for punishment on a 5-point scale from 1 (definitely would not punish) to 5 (definitely would punish).

Participants completed the State-Trait Anxiety Inventory (STAI; Spielberger Gorsuch, Lushene, Vagg, & Jacobs, 1983) after the juror-judgment task and measures. The STAI measures current anxious feelings (state anxiety) and anxiety susceptibility (trait anxiety). The state and trait scales each have 20 items, to which participants respond on a 4-point scale. In Studies 1 and 2, Cronbach's alpha internal-consistencies exceeded .90 for both scales of the STAI. The trait anxiety measure effectively provided a reference point for participants' usual level of anxiety to assess pre-existing differences in anxiety in the experimental and control groups, while the state anxiety scale allowed differences between the groups in their

current levels of anxiety to be assessed. The anxiety measure was placed at the end of the procedure for two reasons. First, pre-post measures of affect, when there is a procedure intended to manipulate affect, provide clear demand characteristics that alert participants to the intent of the manipulation. Second, studies have indicated that measures or procedures that alert participants to their affective states before they engage in evaluative judgments may attenuate the influence of those affective states on those judgments (e.g., Curtis & Locke, 2007; Schwarz & Clore, 1983).

Results and Discussion

Manipulation Check

The groups did not differ in trait anxiety $t(124) = .40, p = .69$. The lack of difference in the trait anxiety measure indicates that the groups were similar in their typical levels of anxiety. The anxiety manipulation was successful in that participants in the anxiety-induction condition had significantly higher state anxiety scores ($M = 41.80, SD = 10.58$) than participants in the control condition ($M = 37.02, SD = 9.73$), $t(125) = 2.63, p = .01$.

Analysis of the Social Judgment Task

To test whether anxious participants applied stereotypes more than did control participants in making their decisions in the mock-juror task a 2 (Affect: anxious vs. control) X 2 (Stereotype: present vs. absent) factorial ANOVA was performed on likelihood-of-guilt ratings. The main effects for Affect ($F(1, 123) = .26, p = .61$) and Stereotype ($F(1, 123) = 1.68, p = .19$) were not significant. If anxious participants relied more on stereotypes to guide their judgments than did control participants there should be an interaction between Affect and Stereotype presence. However, the interaction was also not significant $F(1, 123) = .08, p = .77$, partial $\eta^2 = .001$. The same ANOVA was performed for ratings of the strength of the case, likelihood of recidivism, and recommended punishment; but no significant results were found.

Study 1 failed to find an increase in stereotype application by anxious participants in the mock-juror social judgment task. In Study 1, the stereotype used was a very salient and possibly politically-sensitive ethnic stereotype among the participants tested. It is possible that this study provided demand characteristics that were too noticeable, and therefore participants, whether anxious or not, deliberately avoided rating the stereotypic target as guilty. Some evidence of this possibility can be seen by the absence of a main effect for stereotypicality, that is, the target of judgment was rated equally likely to be guilty whether from the stereotypical group or not. One result that might be expected is that all participants would rate the stereotypic target as more likely to be guilty and, if anxiety had an influence, such a tendency would be more pronounced in anxious participants. The absence of stereotyping *per se* may indicate that participants were unwilling to endorse a salient and politically-sensitive stereotype. Because of this, Study 2 set out to replicate the mock-juror stereotyping task with a less politically-sensitive stereotype. Furthermore, although the sample size was satisfactory in Study 1, non-significant results can sometimes stem from insufficient statistical power. Sample size was a noted criticism of Hall and Crisp's (2003) failure to find an anxiety-related increase in stereotyping, although, notably, Study 1's sample size was more than double that of Hall and Crisp's study. Still, to be sure that statistical power was not at issue, in Study 2 a substantially-increased sample was tested.

STUDY 2

Method

Study 2 used the same methodology and measures as the mock-juror stereotyping task in Study 1, but with different stimuli and a larger sample. Instead of an ethnic stereotype, gender stereotypes were used. In Study 2, participants were presented with a hypothetical criminal case scenario about an alleged assault by a student on their roommate. As males are

more stereotypically associated with violent crime than are females, the defendant was identified as “Nicholas” in the stereotypic condition and “Nicole” in the non-stereotypic condition. The scenarios were otherwise identical.

There were 290 participants, who were mostly students who received partial course credit in their introductory psychology course. Eleven participants were removed from the final dataset because they had guessed the purpose of the study. This left 279 participants (137 anxious, 142 neutral mood control). Participants had a mean age of (27.41 years), there were 104 male and 175 female participants. Importantly, because of the possibility of confounds related to own-group biases, gender of participants was evenly distributed among the various experimental conditions. Chi-square analyses showed the distribution of genders between the anxious and control conditions (anxiety induction: 57 male, 80 female; control: 47 male, 95 female, $\chi^2(1) = .777, p = .38$), and between rating same-gender and opposite-gender defendants were even (male defendant: 45 male, 95 female; female defendant: 59 male 85 female, $\chi^2(1) = 1.739, p = .187$).

Results and Discussion

Manipulation Check

The anxiety manipulation was successful: participants in the anxiety-induction condition had significantly higher state anxiety scores ($M = 42.34, SD = 11.48$) than participants in the control condition ($M = 35.52, SD = 9.60$), $t(277) = 5.37, p < .001$. As in study 1, the groups did not differ in trait anxiety $t(277) = 1.88, p = .061$.

Analysis of the Social Judgment Task

To test whether anxious participants applied stereotypes more than did control participants in making their decisions in the mock-juror task a 2 (Affect: anxious vs. control) X 2 (Stereotype: present vs. absent) factorial ANOVA was performed on likelihood-of-guilt ratings. Consistent with the stereotype, the male defendant was rated as more likely to be

guilty ($M = 6.23$, $SD = 1.82$) than was the female defendant. ($M = 5.70$, $SD = 2.13$), $F(1, 275) = 4.26$, $p = .04$. There was also a significant main effect for Affect ($F(1, 275) = 5.15$, $p = .024$), where anxious participants ($M = 5.71$, $SD = 1.96$) rated likelihood of guilt as lower than did control participants ($M = 6.20$, $SD = 2.04$). Of more importance, however, is the interaction, which tests whether anxious and control participants differentially applied stereotypes in their evaluation of the defendant. This interaction was not significant $F(1, 275) = .95$, $p = .76$, partial $\eta^2 < .001$. As with the analysis for Study 1, no significant results were found when the same ANOVA was performed for ratings of the strength of the case, likelihood of recidivism, and recommended punishment. Additionally, although gender was evenly distributed to allow for potential own-gender bias, to be sure that the results reflected stereotyping, rather than group-based biases, gender of participants was added as a variable in the ANOVAs. There was no significant main effect for, or interaction with, gender of participants and any of the variables of interest.

Study 2 found that both anxious and control participants increased their ratings of guilt for the defendant who was stereotypically more likely to be guilty (in this case, the male). This result addresses a concern with Study 1's stimuli, i.e., that participants may have been unwilling to consider the defendant's group membership in considering their guilt because the defendant was from a politically-sensitive group. However, these results again failed to show an anxiety-related increase in the application of stereotypes in the juror-judgment task. The failure to detect an anxiety-related increase in stereotyping is consistent with some existing literature and with Study 1. Nonetheless, it is striking that no theoretically-predicted anxiety-related increase in stereotyping was detected in Study 2 even with a substantial sample of participants.

As a final possibility, the stimuli and measures used in Study 2, while able to demonstrate stereotyping *per se*, may have been insufficiently sensitive to detect *affect-*

related differences in stereotyping. To examine this possibility, Study 3 repeated Study 2's methodology, but manipulated happiness, an affective state that has previously been shown to increase the application of stereotypes in a similar mock-juror task (Bodenhausen, Kramer et al., 1994). In fact, Study 3 replicated the methods of Bodenhausen, Kramer et al.'s (1994) first study, which found that happiness increased stereotyping in this juror-judgment task, except that their study did not use a gender stereotype.

STUDY 3

Method

Study 3 used the same methodology, measures, and stimuli as the mock-juror stereotyping task in Study 2, except that happiness was induced in half of the participants instead of anxiety and general mood rather than anxiety was measured. An autosuggestion mood induction (Fiedler, 2001) was used, which was identical to that used by Bodenhausen, Kramer et al. (1994, Study 1): half the participants wrote for 10 minutes about a time in their life when they were particularly happy, and the control group wrote for 10 minutes about an ordinary day that did not contain emotional highs or lows. Participants then completed the juror-decision task. After the task, to measure mood, all participants completed a series of six bipolar ratings on a 7-point scale (tired-alert, tense-relaxed, good-bad, low-elated, sad-happy, uncomfortable-comfortable; from Forgas, 1998): the two ratings of interest were good-bad and happy-sad. The mood ratings items were embedded among other items asking participants about whether they found the task interesting vs. uninteresting, easy vs. difficult, etc. in order to obfuscate the demand characteristics of the mood rating.

There were 195 participants (107 happy, 88 neutral mood) who were mostly students who received partial course credit in their introductory psychology course. There were 61 male (31 evaluated a female defendant and 30 evaluated a male defendant, 30 were in the

happy group and 31 in the control group) and 134 female participants (67 evaluated a female defendant and 67 evaluated a male defendant, 77 were in the happy group and 57 were in the control group). As in Study 2, chi-square analyses confirmed that the distribution of gender across conditions was even all $ps > .25$.

Results

Manipulation Check

The two mood-rating items of interest (good-bad, happy-sad) were combined because they correlated strongly $r = .70, p < .001$. The happy mood manipulation was successful: participants in the happy group had scores that were significantly more positive on the mood measure ($M = 5.65, SD = 1.01$) than participants in the neutral mood condition ($M = 5.22, SD = 1.17$), $t(193) = 2.75, p < .001$. Additionally, the mood rating item that reflects anxiety (tense vs. relaxed) was examined to be sure that any group-based differences within this study could not be attributable to anxiety. The happy and control groups did not differ in their ratings of the tense-relaxed item $t(193) = 1.158, p = .248$

Analysis of the Social Judgment Task

To test whether happy participants applied stereotypes more than did control participants in making their decisions in the mock-jury task a 2 (Affect: happy vs. control) X 2 (Stereotype: present vs. absent) factorial ANOVA was performed on likelihood-of-guilt ratings. Consistent with the stereotype, and with Study 2, the male defendant was rated as more likely to be guilty ($M = 6.48, SD = 1.69$) than was the female defendant ($M = 5.65, SD = 2.33$), $F(1, 191) = 7.29, p = .008$. There was no main effects for Affect, $F(1, 191) = 1.70, p = .19$. However, unlike the previous two studies, there was a significant interaction between affect and stereotypicality of the defendant $F(1, 191) = 4.95, p = .027$, partial $\eta^2 = .025$. Within this interaction, the neutral mood group rated male ($M = 6.33, SD = 1.69$) and female ($M = 6.20, SD = 2.30$) defendants as equally likely to be guilty. By contrast, happy

participants rated male defendants ($M = 6.60$, $SD = 1.70$) as more likely to be guilty than female defendants ($M = 5.17$, $SD = 2.27$), consistent with the relevant gender stereotypes.

As with the analysis for Studies 1 and 2, the same ANOVA was performed for ratings of the strength of the case, likelihood of recidivism, and recommended punishment, but no other significant results were found. As in Study 2, gender of participants was added as a variable to the ANOVAs, and again no significant effects of participants' gender were found.

General Discussion

Study 1 tested the hypothesis that anxiety would increase the use of stereotypes in a evaluation of another person, specifically within a juror-decision-making task. Although participants in Study 1's anxiety-induction condition were significantly more anxious than participants in the control group, as measured by a well-validated and reliable measure of anxiety, Study 1's results did not support the hypothesis. However, it was possible that failure to elicit or detect increased stereotyping related to anxiety in the juror-decision task was attributable to politically-sensitive nature of the stereotype used or to the statistical power provided by the sample. Because of these considerations, Study 2 repeated the test of the hypothesis that anxiety would increase stereotyping using both a larger sample and a less politically-sensitive stereotype.

In Study 2, defendants from the group more stereotypically associated with the crime were rated as more likely to be guilty, suggesting that the stimuli could detect stereotyping, and that participants did not avoid stereotyping out of political or self-presentational concerns. In Study 2, as in Study 1, participants in the anxiety-induction condition were significantly more anxious than those in the control condition, but still no anxiety-related increases in stereotyping were observed. One potential explanation for Study 2's failure to find that anxiety increased the use of stereotypes in the juror decision-making task was that the stimuli, while able to detect stereotyping generally, may have been unable to detect

differences in stereotyping caused by mock-jurors' affective states. To test this possibility, Study 3 replicated Bodenhausen, Kramer et al.'s (1994, Study 1) examination of the influence of happiness on stereotyping, using the stimuli from Study 2.

Study 3 found that happiness increased stereotyping in the juror decision-making task. Although Study 3 simply replicates an existing demonstrated effect of affect on the use of stereotypes in a juror decision-making task, importantly, it demonstrates that the stimuli and measures that failed to detect an anxiety-related increase in stereotyping in Study 2 were sensitive to affect-related biases where such biases exist. Moreover, Study 3 adds to the argument that statistical power was sufficient to detect an anxiety-related increase in stereotyping, had it occurred, because Study 3 had a smaller sample than Study 2.¹ Taken together, the findings of the three studies in this paper are both practically and theoretically important.

Often in psychology studies that produce results that are not statistically significant are dismissed as being uninteresting or such results were attributed to problems with research such as the methods or the statistical power. However, as stated, the studies in the present paper used a well-established methodology, large sample sizes to overcome issues of power, valid and reliable measures of anxiety, and the third study established that the stimuli and measures were able to detect affect-related differences. Moreover, previous studies had not adequately tested the theoretically-derived prediction that anxiety would increase the use of stereotypes in evaluations of other people in a simple social-judgment situation or in a juror-decision task. With these facts in mind, the non-significant effects reported in this paper are both interesting and important.

Theoretical Implications

The failure to find an increase in stereotyping in Studies 1 and 2 is surprising in light of the clear theoretical reasons to expect that anxiety would increase stereotyping in social

judgments (Fiske & Morling, 1996; Wilder, 1993). Specifically, Wilder and Shapiro (1989a) reasoned that because anxiety would take up cognitive resources people would rely on stereotypes in order to process interpersonal information more efficiently. As noted earlier, it has become widely assumed in social psychology, since Wilder and Shapiro's studies were published, that anxiety increases the use of stereotypes in evaluations of others. However, the failure to find increased stereotyping related to anxiety in Studies 1 and 2 is less surprising when taken in the context of other research. Other studies, for example, have shown that anxious people failed to stereotype (Hall & Crisp, 2003) or preferred affect-congruent to stereotypic judgments (Curtis & Locke, 2005; 2007). Moreover, as outlined at the start of this paper, there are also reasons to question whether the earlier research upon which these theories were based (i.e., Wilder & Shapiro, 1989a, 1989b) adequately tested whether stereotypes were used by anxious people in evaluative judgments.

Curtis and Locke (2005) suggested that previous research into anxiety and stereotyping employed measures that were sensitive to memory errors. This conclusion is consistent with findings that anxiety reduces performance in tasks that rely on memory (Eysenck, 1992). Curtis and Locke, proposed that the results of both Wilder and Shapiro's (1989a, 1989b) studies, and illusory-correlation studies of anxiety and person perception (Baron et al., 1992; Friedland et al., 1999), could be explained by source monitoring errors. Specifically, in these studies, the results would be identical if anxiety increased stereotyping *or* if it caused participants to have difficulty in distinguishing existing stereotypic or group-based information from newly-learned information about an individual impression-formation target. The failure to find increased stereotyping by anxious participants in Studies 1 and 2, using a measure that tests *evaluative judgments* of another person, and that has little reliance on memory accuracy, suggests that anxiety may not increase stereotyping in a context where memory confusion is unlikely. In sum, the studies presented in the present paper are

important as they provide the first direct test of whether anxiety increases the use of stereotypes in evaluations of other people in an straightforward social judgment task.

Given that the evidence in this paper does not support theories that anxiety increases stereotyping, a question that arises is: why would anxiety *not* increase stereotyping in evaluations of others? A possible reason for anxiety not increasing stereotyping is the impact anxiety has on mental effort and deployment of cognitive resources. According to attentional control theory (Eysenck, Derakshan, Santos, & Calvo, 2007), in situations where there are minimal impositions on working memory, such as in Studies 1 and 2, anxiety can motivate enhanced effort and redirection of information-processing resources, which combine to facilitate task performance. Thus, although anxiety may have commandeered information-processing resources, participants may have directed more effort in their information-processing to compensate for this in order to make an accurate evaluation of the defendant, and, therefore, were no more reliant on stereotypes in evaluations.

It should be noted that the results of Study 3 provide a replication of the results of other studies. In similar mock-juror social-judgment tasks happiness increased stereotyping of Hispanics, student-athletes (Bodenhausen, Kramer et al. 1994), priests, and skinheads (Krauth-Gruber & Ric, 2000).² Study 3 found that increased stereotyping related to happy mood extends to gender stereotypes and adds to the already-substantial body of evidence demonstrating that happiness often increases stereotyping (e.g., Park & Banaji, 2000). The means in Study 3 show that the happy and control groups rated male defendants similarly in their likelihood of guilt, but happy participants rated female defendants as significantly less likely to be guilty. This pattern of results seems to be reflective of an increased endorsement of stereotypes of females as passive rather than being an endorsement of negative stereotypes of males as aggressive. It nevertheless reflects a more stereotype-consistent pattern of judgments by happy participants.

Practical Implications

As noted at the start of this paper, moods and emotions can influence jurors' decisions (Bright & Goodman-Delahunty, 2006; Semmler & Brewer, 2002), stress and anxiety are affective states that are commonly experienced by jurors (Bornstein, Miller, Nemeth, & Musil, 2005; Kaplan & Winget, 1992), and one potential impact of such anxiety is increased stereotyping. It is well-established that stereotypes can bias decisions made by jurors and the sentences given by judges, which, aside from being inaccurate, may disadvantage certain groups within the legal system (e.g., Snowball & Weatherburn, 2007). To some extent, the findings reported in this paper are a good news story, in that, ironically, anxiety is one less thing to worry about as a potential cause of stereotype-based bias in the decisions made by jurors. If jurors experience anxiety as a consequence of the unfamiliar court environment, or the pressure to make a decision about the guilt or innocence of the defendant, we can be reassured that such anxiety may not increase their reliance on stereotypes in their evaluation of the defendant's guilt.

As the literature suggests, anxiety, rather than happiness, is a common emotional experience for members of juries. Because of this, bias arising from jurors' happiness is possibly less of a practical concern than bias that may arise from jurors' anxiety. Nonetheless, it is imaginable that in some situations jurors will be in a happy mood when evaluating defendants, for example, they may be amused by a lawyer's use of humor as an argumentative tactic in the courtroom (see Hobbs, 2007). The results from Study 3 suggest that such happy mood may lead to leniency with a female defendant who does not fit the gender-crime stereotype, rather than more severe judgments of a male defendant who does fit the gender-crime stereotype. Although a less important contribution than the evidence regarding anxiety, this is, nevertheless, worthy of notice.

Limitations and Future Research Directions

The theories that propose that anxiety will increase stereotyping do so in the context of *application* rather than *activation* of stereotypes. These theories predict that people will rely more on stereotypes in making judgments of others, which is an application of stereotypes. While the present studies show no increase in the application of stereotypes related to anxiety, they are silent as to the potential for anxiety to differentially influence activation of stereotypes, that is the accessibility of stereotypes in mental processes (Locke, Macleod, & Walker, 1994). Some researchers have speculated that anxiety may influence the activation of stereotypes (e.g., Amodio & Hamilton, in press; Schaller, Park & Mueller, 2003), but such a proposal remains to be well tested empirically. It may be possible that anxious participants activate stereotypes but then exert mental effort to control the application of stereotypes. It is unclear whether people who are anxious activate stereotypes more, as this would give more certainty to arguments that they later attempt to control the application of these active stereotypes in evaluations of other people. An alternative is that anxiety, as with other cognitively loading activities (e.g., Gilbert & Hixon, 1991), may inhibit the activation of stereotypes, and this limited activation may explain why stereotypes were not applied by anxious participants in the Studies 1 and 2. Future research is needed to examine whether anxiety differentially effects the activation of stereotypes in judgments of others.

The implication of attentional control theory (Eysenck et al., 2007), which is a general theory of anxiety and task performance rather than a specific theory of anxiety and interpersonal judgments, is that anxiety will increase stereotyping only when anxiety is also accompanied by clearly increased cognitive load. However, the anxiety-assimilation hypothesis of Wilder and Shapiro (1989a), which the present paper sought to test, asserts that the typical cognitive load created by anxiety will be sufficient to increase stereotyping in evaluative judgments of other people. Although this paper provides a clear test of Wilder and

Shapiro's predictions it does not test the possibility that further imposition of cognitive load on top of anxiety would increase stereotyping. A future study could measure and manipulate cognitive load in addition to anxiety in a social judgment or juror decision-making context to more explicitly examine the role of cognitive load and its potential interaction with anxiety in the use of stereotypes in evaluations of people.

Conclusion

In 1988 singer Bobby McFerrin's advised people to "Don't Worry, Be Happy" in his hit song. However, the results presented in this paper suggest that if one wishes to avoid stereotyping, don't be happy, worry. The results presented in this paper provide a challenge to the widely-held belief in social psychology that anxiety increases stereotyping (e.g., Bodenhausen et al., 2007). Studies 1 and 2 provided a straightforward test of the predictions of the anxiety-assimilation hypothesis that anxiety would increase stereotyping in evaluation of other people, overcoming some of the limitations in previous research to test this theory. Study 3, confirmed the ability of this stimuli and measures to detect affect-related differences in stereotyping, and added further evidence to the existing literature that happiness can promote the use of stereotypes. These findings have practical implications for understanding the possible influences of moods and emotions on the use of stereotypes by jurors in their evaluation of defendants in the courtroom. However, research is still needed to examine whether anxiety differentially influences the activation of stereotypes, and the extent to which cognitive load and anxiety may interact in promoting stereotyping.

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Author Note

Please address all correspondence concerning this article to Guy Curtis, School of Psychology, Murdoch University, 90 South St. Murdoch, Western Australia, 6150, Australia.

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Footnotes

1. Additionally, when the data from Studies 1 and 2 are combined to give the sample size in excess of 400 the interaction of affect and stereotypicality is still not significant $F(1, 402) = .21, p = .647, \text{partial } \eta^2 = .001$.
2. Study 3 used the identical mood manipulation for happiness as that of Bodenhausen, Kramer et al. (1994; Study 1). It is possible that this manipulation influenced arousal and/or cognitive load, not simply happiness. Although it is possible that in the present study arousal or load from this manipulation, rather than happiness resulted in increased stereotyping it is notable that Bodenhausen, Kramer et al. (1994, Studies 2 & 3) replicated happiness increasing stereotyping in a juror-decision task with mood manipulations that rule out explanations based on arousal or load.