

THE EFFECT OF MOOD ON WISHFUL THINKING AND NFL OUTCOME
PREDICTIONS

by

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Abstract

People make judgments and decisions on an everyday basis. From picking an NCAA Tournament bracket to judging the likelihood of rain, people often have a preference for one outcome over another. Wishful thinking is the idea that people's desires exhibit a causal influence on their expectations—specifically, a desire for an outcome increases people's optimism about that outcome. Past research has found wishful thinking (or “the desirability bias”) in a variety of contexts, including sports and political decisions. Separate research has shown that differing mood states can affect interpretation of information, judgments, and decisions. Because people rarely make decisions when in a neutral mood, our study investigated the influence of mood on wishful thinking. We hypothesized that putting participants into a happy mood would increase the amount of wishful thinking they exhibited relative to putting participants into a sad mood. To test this, we manipulated participants' moods by having them watch either a happy or a sad video clip. Afterwards, they made predictions for each of the 16 games played in the first week of the 2014-15 NFL season. Overall, we found that people exhibited wishful thinking in that they were far more likely to predict their favorite team winning as compared to the other teams. However, mood did not appear to affect people's predictions. In other words, both happy and sad participants exhibited similar levels of wishful thinking.

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The Effect of Mood on Wishful Thinking and NFL Outcome Predictions

Imagine that John is filling out a bracket for the Men's NCAA Basketball Tournament in the hopes that he will win the pool of money that he and his buddies contributed to the group. In choosing the winners of each matchup, he reaches a game between his alma mater and a much higher ranked team. The bracket challenge rewards the most accurate entry, so the rational choice would be to choose the higher ranked team. John disregards this discrepancy and chooses his alma mater, on the basis that they are the underdog, but they are playing well and have more momentum than their opponents. Without admitting it (and perhaps without even knowing it), John just displayed wishful thinking. Wishful thinking is the phenomenon that occurs when an individual makes a decision or judgment that is based on what they desire or hope for, as opposed to what is rational and evidence based. Wishful thinking is also known in the field of Psychology as the Desirability Bias, and has been studied extensively through the lenses of cognitive psychology (Bastardi, Uhlmann, & Ross, 2011; Dunning & Balci, 2013), political science (Jost, Ashworth, & Heyndels, 2012), and neuroscience (Aue, Nusbaum, & Cacioppo, 2012), among many others. Several studies have attempted to address the question of why the Desirability Bias (wishful thinking) persists even when individuals are presented with feedback and evidence that should lead them to more accurate predictions, decisions, and judgments (e.g., Massey, Simmons, & Armor, 2011). Few have reached any solid conclusions, other than the fact that the Desirability Bias does indeed occur. Even fewer studies have addressed what factors may influence the likelihood or magnitude of the Desirability Bias. The study described below was designed to investigate whether a particular factor—one's current mood—could affect the magnitude of wishful thinking.

Background on Wishful Thinking

Wishful thinking—also known as the Desirability Bias— is oftentimes conflated with optimism (Krizan & Windschitl, 2007). However, there is an important distinction between these terms. Optimism can be roughly described as a preference-expectation link between what someone wants to happen and what he or she believe will actually happen (Carver, Scheier, & Segerstrom, 2010). The preference-expectation link has been seen throughout history, especially in the domain of politics and elections. Multitudes of studies throughout the 20th century have examined this phenomenon, wherein supporters of a particular candidate were far more likely to predict that their candidate would win the upcoming election (see Granberg & Brent, 1983 for an overview). Hayes (1936) was the first to document this link when he studied the 1932 presidential election between Roosevelt and Hoover. From the participants sampled, 93% of Roosevelt supporters predicted that Roosevelt would win, as opposed to the 73% of Hoover supports that predicted a Hoover victory. Findings from varying research indicate that the preference-expectation link extends to sports domains, investments, and other social contexts (Babad, 1987; Babad & Katz, 1991; Olsen, 1997).

Although there is an abundance of evidence supporting a correlation between preferences and expectations, this does not necessarily mean that people's preferences are exhibiting a causal influence on their expectations. An alternative explanation for the preference-expectation link might be that people do not base their expectations on their preferences, but perhaps do it the other way around, letting their expectations of who is going to win an election (or soccer game, etc.) inform their preference (Krizan & Windschitl, 2007). This is what's commonly known as the bandwagon effect (Navazio, 1977) and it is

seen and used most commonly in sports contexts. It should be noted that finding a link between preferences and expectations is not, by itself, evidence of wishful thinking. Wishful thinking is the idea that people's desires exhibit a *causal* influence on their expectations.

Past research on the Desirability Bias has been limited to situations in which the participant has no control (or perception of control) on outcomes. The reason for this is that in any given situation where an individual has a sense of control over the outcome, an optimistic outlook could be then attributed to that individual's exaggerated perception of control, and not simply desire. Furthermore, this context is important because if participants have control over the outcome, it would be impossible to determine whether or not the preference for an outcome would lead them to, for example, try very hard to make that outcome happen, which would in turn actually increase its likelihood. Events which people have no perceived control over are what are mostly studied in the literature, because when judging an event on which one has no control, the judgment is based on fewer factors, namely: preference (desirability), pre-existing knowledge, and attention (salience/"marking"). One of the fundamental pieces of wishful thinking is that even when people have no control over the outcome of a situation, their judgments are predictably biased in the direction of the preferred outcome.

One of the earliest studies to experimentally manipulate preferences in order to examine their influence on expectations was that of Marks (1951). She developed what is known as the *marked-card paradigm*. In this experiment, participants were asked to make predictions about whether a card with a specific marking on it will be drawn from a deck. The participants had to predict which card would be on top of the deck after it was shuffled. Desire was manipulated by associating the marked card with winning or losing money. In

this study, participants were more likely to predict that the marked card would be on top of the deck when that card was associated with winning money, but less likely to predict the marked card when it was associated with losing money. Using this paradigm, wishful thinking is easily elicited and the effect is robust. Finding wishful thinking in a real-world situation is another story.

Although wishful thinking is often observed using some experimental task like the marked-card paradigm, it is sometimes elusive in different contexts. For example, Bar-Hillel, Budescu, and Amar (2008) investigated wishful thinking as it pertained to the 2002 and 2006 World Cup soccer matches, with the expectation of finding the desirability bias in a real-world competitive sports scenario. These researchers sampled 800 university students by asking them to fill out questionnaires regarding the upcoming World Cup group stage matches, in exchange for monetary prizes. For each game, respondents indicated the probability of either team winning (whose sum was 100%). In addition to an accuracy incentive for correctly predicting the largest number of games, each questionnaire designated one “target” team whose win in their matchup would result in a payout for the respondent equal to that of the accuracy incentive (approximately \$5). Results indicated that for each of the eleven matches, a significantly greater percentage of respondents predicted the desired “target” team would win, possibly indicating a Desirability Bias. However, Bar-Hillel et al. noted that the observed inflated probability for the desired team could simply be attributed to an increased salience or “marking” effect for the designated team, and not desirability (for a related argument, see Vosgerau, 2010). To address this, they ran another similar study that was designed to specifically enhance the salience of one of the matched-up teams over the other. In this second study, the salience effects observed were equal to that of the

manipulated desirability, beckoning the researchers to doubt whether increased motivation or simply attention were the cause—parsimony would argue the latter.

This salience idea can explain the Desirability Bias in some contexts. However, in the marked card paradigm, when the marked card is made salient by associating it with losing \$1, people are less likely to pick it as compared to when it is not made salient. Because the salience explanation can't fully account for the Desirability Bias, researchers have sought explanations for how the Desirability Bias operates and why the effect varies in intensity from study to study. Windschitl, Smith, Rose, and Krizan (2010) have posited 3 mechanisms that account for the Desirability Bias. The *Biased Evaluation* account states that when one outcome is seen as more desirable than another, people will tend to evaluate the evidence or reasoning more favorably for that outcome, as opposed to the others (Bastardi et al., 2011). When determining the probability of a certain event happening, one might downplay the evidence supporting the event not happening, and emphasize the evidence that supports the event happening. This motivated evaluation of scientific evidence can take hold in a variety of contexts. For example, both a climatologist and a climate-change skeptic can be presented with the same empirical evidence about atmospheric carbon dioxide, yet their interpretations of the evidence will serve to reinforce their pre-existing stances on the issue. This account simply describes the mechanism in which preferred conclusions affect the way that people use the evidence given to them.

The second account is called *Biased Threshold* and it reasons that the evaluation and perception of evidence is unbiased, but for the outcome that is desired, the threshold for predicting that outcome is lowered. Going back to the example of John making predictions about his team beating an objectively stronger team, it is possible that John's evaluations of

the strengths of both teams is unbiased. That is, he is willing to concede that his team only has a 40% chance of winning because his alma mater is not quite as good of a team as the team it is playing. However, because of John's desire for his team to win, he might focus on the fact that upsets do occur so it isn't impossible for his team to win. In other words, he might lower his threshold for predicting that his team will win because of his desire. Imagine that George is also making a prediction about John's alma mater, but George has no desire for them to win or lose. George might similarly evaluate the teams and also conclude that the team has a 40% chance of winning. Because he has no vested interest, his threshold might be higher (e.g., in order to predict that a team will win, it has to have $> 50\%$ chance of winning). In short, the biased threshold account assumes that people might be unbiased in their evidence evaluation, but they might change their threshold for the amount of evidence required to predict that a desired outcome will occur.

Lastly, Windschitl et al. (2010) introduce the *Biased Guessing* account, which states that when faced with a subjectively arbitrary decision—e.g., making a 50/50 marked card choice—people are likely to guess in the direction consistent with their desires. Even when the odds are not as clearly demarcated as 50/50, the knowableness of the situation may still be low enough to warrant a guess in the desirable direction. When faced with an arbitrary decision situation (i.e., a “guess”), this account explains the tendency for people to choose the preferred outcome, all other things being relatively equal.

These three accounts proposed by Windschitl et al. (2010) provide an explanation for how the Desirability Bias occurs, whereas other researchers have attempted to explain what factors might influence *whether* there will be a wishful thinking effect. Mentioned briefly above, the “illusion of control” is one such factor that might cause an increase in the

likelihood judgment of an outcome. Researchers have found that people are more optimistic about the outcome of a coin toss when they themselves toss the coin (Langer & Roth, 1975). Budescu and Bruderman (1995) tried to address this concern with the marked-card paradigm by allowing one group of participants to pick their own cards, and having another group's cards chosen for them by an experimenter. However, their findings did not suggest illusory control benefits in this paradigm. The role of large accuracy incentives as an influential factor has also been examined. Simmons and Massey (2012) investigated the effect of paying participants small accuracy incentives (\$5) versus large accuracy incentives (\$50) to correctly predict weekly NFL matchup winners. Wishful thinking persisted in this case, despite the large payout for accuracy.

Massey, Simmons, and Armor (2011) conducted a study that investigated the persistence of optimism despite experiential knowledge. Massey et al. recruited 728 National Football League fans to participate in their study in which they indicated their favorite NFL team, and then completed weekly surveys predicting the winners of each NFL matchup. Throughout the 17-week NFL season, the participants were provided with feedback, simply by observing the actual results of each week's games. What they found was that each participant's optimism for their favorite team to win (the desirable result) persisted throughout the entire season. Even in the face of unambiguous, consistent feedback, the desirability bias remained. So far, feedback, accuracy incentives, and illusion of control have been three such factors that have been studied with regards to wishful thinking. Another such factor that warrants consideration is the current mood of the participants.

Background on Mood

Mood (sometimes referred to as *affect*) is the term used to describe an individual's current emotional state. Although mood can range across a continuum, researchers tend to study mood as a dichotomous entity, consisting of polar opposites, such as happiness or sadness. Much research has shown that differing mood states can affect interpretation of information, judgments, decision making, and reasoning (Blanchette & Richards, 2010). Distinctly human higher level cognitive processes have historically been thought of as separated from the systems that govern emotions (which, for this paper, we will assume is synonymous with mood). This trend has been bucked in recent years, with behavioral research suggesting that affective states, such as being in an elevated or depressed mood, can have measured effects on cognitive performance of certain tasks, such as decision making and logical reasoning (Blanchette & Richards, 2010). For example, affect-congruent judgment effects were examined by Mittal and Ross (1998), wherein they observed that business scenario decisions were evaluated differently depending on the subject's mood. Participants who were in a positive mood were more likely to interpret a marketing strategy as a potential opportunity, rather than a threat, as opposed to participants in a negative mood. The impairment of reasoning as a result of differing mood states was originally studied by Lefford (1946) when participants who were assigned to determine the logical validity of 40 syllogisms made many more errors on the 20 syllogisms that evoked emotional subject matter than on the 20 syllogisms that were non-emotional.

There have been many proposed mechanisms by which mood affects higher cognitive processes, two of which are highly emphasized in the literature: Mood-As-Information, and the Availability Heuristic. The Mood-As-Information Hypothesis states that when put in an

ambiguous situation, people will often resort to using their mood as a reference point from which to judge the situation. People in happy moods are less likely to be as critical and will be less careful in their judgments. People in sad moods will be more cautious and therefore generally less biased in their decision-making. For example, one study found that people in a good mood were equally persuaded by strong or weak appeals, whereas people in a negative mood were persuaded more by strong appeals (Clore & Huntsinger, 2007). In other words, people in a negative mood were more attentive to the details of the persuasive attempt.

The Availability Heuristic leads to the same conclusions, but by way of a different cognitive pathway. This heuristic states that estimates of likelihood are correlated with how many instances of that event happening a participant can retrieve from memory. The more available the memory, the more the participant will see the judgment as likely to happen. If a participant is asked, “Which are you more likely to be killed by? A vending machine, or a shark?” the Availability Heuristic describes the process by which the participant would answer “shark” because when scanning their memory the idea of a shark attack comes more readily to mind than death-by-vending machine—which actually accounts for twice as many deaths per year in the U.S. (Mahajan, 2011). When applied to a discrete outcome prediction scenario, the Availability Heuristic would propose that if a participant is in a happy mood, more happy thoughts would come to mind and these happy thoughts would inflate optimism for a positive outcome. Likewise, in a sad mood, more sad thoughts would be readily available and people might think a negative outcome is more likely to occur.

How Mood Could Affect Wishful Thinking

Given that mood can influence judgments, decision-making, and reasoning, it seems quite possible that the magnitude of wishful thinking may be affected by mood as well. Of

the two aforementioned mechanisms (the Mood-as-Information Hypothesis, and the Availability Heuristic), it is possible that one or both may contribute to either increased or decreased magnitude of wishful thinking depending on a participant's current mood. If participants are primed with a positive mood induction, they might be less likely to critically analyze the scenario and will more readily choose the desirable outcome. Conversely, participants in negative moods will have the feeling "something isn't right here" and will therefore scrutinize their judgments more carefully, resulting in less wishful thinking. It could also be that in a happy mood, participants are more apt to think about the times when their favorite team won or did generally well, and those memories will bias their outcome prediction (i.e., availability heuristic). Either of these two mechanisms may account for the changes to wishful thinking.

The Current Study

The current study was designed to extend previous research and test to see if mood affects the Desirability Bias in any substantial way. As a partial replication of Massey, Simmons, and Armor (2011), we used a similar NFL matchup predictions paradigm to measure Desirability Bias, while incorporating the mood induction aspect. Massey et al. recorded participants' game predictions for all 17 weeks of the NFL season, while we limited our focus to the week 1 matchups. After obtaining background information about the participants (notably, their favorite teams and their 1-9 Likert scale ratings for how much they like every team in the league), each participant was randomly assigned to watch a short video clip that was designed to elicit either a happy or a sad mood. Lench, Flores, and Bench (2011) conducted a review of different mood elicitation techniques and found that film and pictures are very effective in eliciting discrete emotions. Films are particularly attractive and

are most common for this type of research because they can be relatively short and standardized, but still elicit the desired mood effect. After watching the assigned video clip, the participants predicted the winner for each of the 16 week 1 games.

According to Clore and Huntsinger (2007), people in positive affective states are more biased, while people in negative affective states are less biased when it comes to reasoning and decision-making. This rationale can be applied to the present study, in that we predict that the participants who view the happy video clip will subsequently exhibit a greater Desirability Bias than those who watch the sad video clip (i.e., the happy participants' predictions will more strongly correlate with their indicated favorite team and their stronger preferred teams than those predictions from the sad participants).

Method

Participants and Design

Three hundred participants were recruited using the Amazon Mechanical Turk website. Participants were self-reported NFL fans and included males and females between the ages of 18-50 ($M = 38.95$, $SD = 12.81$) from the United States, and were compensated \$0.50 for their participation in this study. Our subject pool was comprised of a majority of male participants ($N = 203$) and minority of female participants ($N = 97$). This study was approved by the Institutional Review Board at Appalachian State University (see Appendix A).

The research methodology employed a 2 (mood condition: happy or sad) x 2 (team: favorite team vs. other teams) mixed factorial design. The mood factor was between-subjects, while the team factor was within-subjects. Because preferred team is a subjective measure and can't be assigned, we randomized all of our participants only by mood condition.

Measures

Our primary dependent variable was the prediction of the winner of the 16 games. Then, we transformed this to a prediction about whether each of the 32 teams will win.

Procedure

Each participant that met the age and geographic location requirements (18+ in the United States) was invited to take part in the study. All questions, instructions, and information regarding the experiment were presented on their computer via the online survey. After reading the provided informed consent document (see Appendix B) and completing an instructions check to ensure that they had read the instructions (Oppenheimer, Meyvis, & Davidenko, 2009), participants indicated their favorite NFL team from a checklist including all 32 teams. After choosing their favorite, participants were asked to rate how much they liked each team on a 1-9 Likert scale ranging from 1 (Very strongly DISLIKE) to 9 (Very strongly LIKE). This team preference assessment was the same as that of Massey et al. (2011).

Following the team preference assessments, each participant was randomly assigned to either a happy or sad mood condition. Accordingly, they were presented with a corresponding video clip that has been shown to elicit the desired mood effect. Participants assigned to the happy mood condition watched a video taken from season 1 of “Mr. Bean” in which the main character comically tries to stifle a sneeze and stay awake in church. Participants in the sad mood condition watched a clip from “The Champ” where a boxer says his last dying words to his bereaved son. These video clips have been used in previous research (Schaefer, Nils, Sanchez, & Philippot, 2010) and have successfully elicited the desired mood state. Because these surveys were completed online, we had little control over

whether or not the participants actually watched the short video clip. To account for this, we incorporated a timer to check post hoc if they had skipped the video. We also told the participants they would be asked questions about each video after it was viewed. After viewing the video, each participant was asked to briefly describe the movie scene that they had just watched.

After this segment of the experiment, the participants made predictions about the outcomes of upcoming NFL games. On one single page, each of the 16 week 1 matchups were listed along with a checkbox for the participant to indicate their prediction of the winner (e.g., “The New England Patriots are playing the Miami Dolphins in Miami. Who do you think will win the game?”). Participants were instructed to read each question carefully and make their prediction about which team will win. Following these predictions, participants were again subjected to a short video clip designed to bring their affective states back to a “neutral” condition. Specifically, all participants watched a segment of Bill Cosby’s 1983 stand-up special, “Himself.”

Finally, participants were asked to indicate each team’s regular season record for the previous season, by typing in the number of games won and lost (totaling 16) for each of the 32 teams. Again, the participants were prompted that the researchers were interested in what they knew at the time, not what they could look up, and were therefore instructed to give their best estimates of records if they did not definitively know an answer. This completed the desired measures and participants were debriefed and credited for their participation in the study.

Results

Three hundred participants completed the online survey. Of this sample, we excluded 65 participants who failed the instructions check¹. For each participant, we identified whether he or she reported his or her favorite team would win their game (0 = lose, 1 = win). Then, we averaged together each participant's predictions about all the other teams. Each participant, therefore, had a prediction about their favorite team and an average prediction about all the other teams. We next conducted a 2 (team: favorite team vs. average of other teams) x 2 (mood: happy vs. sad) mixed analysis of variance on participants' predictions about who would win each game. Mood was manipulated between-subjects factor while team was a within-subjects factor. We found a main effect of team, $F(1, 233) = 128.91, p < .001, \eta_p^2 = .36$. As shown in Figure 1, participants were much more likely to predict that their favorite team would win as compared to the average of all the other teams. In other words, there was a significant wishful thinking effect. There was no main effect of mood, $F(1, 233) = 1.14, p = .286, \eta_p^2 = .005$. Overall, there were no differences in the judgments given by those in the happy vs. sad conditions. Finally, there was no interaction between team and mood, $F(1, 233) = 0.91, p = .340, \eta_p^2 = .004$. As shown in Figure 1, participants in the sad and happy conditions were equally optimistic about their favorite team relative to all other teams. This, of course, does not support our hypothesis that participants in a happy mood would exhibit a larger Desirability Bias than participants in a sad mood.

We also examined how participants' ratings of how much they liked each team related to their predictions of whether the team would or would not win. Presumably, the more that people like a team, the more they would want that team to win. To examine this

¹ The inclusion of these participants does not change the analysis for the full sample.

relationship, we calculated within-participant correlations between each participant's liking score and whether they predicted each team would win. This analysis revealed that, on average, there was a positive correlation between participants' liking and their predictions; the average within-participant correlation was .15 ($SD = .20$). This value was significantly greater than zero, $t(234) = 11.50, p < .001$. In other words, the more that participants reported liking a team, the more likely they were to predict that the team would win its upcoming game. Finally, we examined whether the strength of the relationship between liking and predictions varied across our two mood conditions. An independent samples t-test revealed that the relationship was not significantly different for participants in the happy condition ($M = .16, SD = .17$) and sad condition ($M = .13, SD = .21$), $t(233) = 1.32, p = .19, d = .16$. This finding is consistent with the previous analyses in that participants' predictions were affected by their desire for a team to win (as evidenced by the positive correlation between liking ratings and predictions), but the participants' mood did not affect the strength of this relationship (the correlation between liking ratings and predictions was similarly strong in the happy and sad conditions).

Discussion

In this study, 300 NFL fans predicted who they thought would win each of the 16 week 1 games of the 2014-2015 NFL season. Based on two separate analyses, we found evidence of wishful thinking. The first analysis revealed that fans predicted their favorite teams to win a significantly greater amount of the time than the average of all of the other teams. The second analysis revealed that the more people liked a team, the more likely they were to predict a victory for that team. However, it was found that manipulating the current moods of the participants did not moderate this wishful thinking effect. Specifically, participants in the

happy and sad mood conditions exhibited similar levels of wishful thinking.

Explanation/Limitations

The cause for these findings can be complex and interconnected. First and foremost, the finding that there was no effect of our mood manipulation on people's wishful thinking could be attributed to an ineffective mood manipulation. For example, because this was an online survey, the participants may not have paid attention to the video clips designed to influence their mood, or they may have skipped them all together. This was a consideration when designing the study, so we chose to include an item on the survey to make sure that the participants were paying attention during the video clips—specifically, we asked “In 2-3 sentences, please briefly describe what happened in the video you just watched.” From the responses obtained it was clear that the attention was there, however, we cannot definitively say that the participants experienced the desired mood-state. Each of the video clips used in this study were previously shown to elicit happy or sad moods (Schaefer, Nils, Sanchez, & Philippot, 2010), yet it could be possible that this manipulation did not work for this study. This, of course, would account for the lack of an influence of mood on wishful thinking.

Another alternative explanation is that perhaps the desirability bias occurs equally in happy or sad individuals, but for different reasons. This could potentially explain the lack of differences between the two groups. Individuals in a happy/positive mood-state at the time of a judgment could be exhibiting wishful thinking as a reflection of their positive mood, or to maintain their elevated mood state (Isen, 1987). In contrast, individuals in a sad/negative mood-state could be exhibiting wishful thinking as a coping mechanism (i.e., predicting a desired outcome as a way to bring themselves out of the negative mood) (Cialdini et al., 1987). The current research is limited in that we did not include a “neutral mood” control

group by which to compare the two high-arousal conditions. It is possible that neutral mood state individuals have the tendency to recognize their desirability biases and would therefore make more rational predictions.

Finally, it is possible that the Desirability Bias is so robust, that we would find it in any mood state. Given a certain set of circumstances, wishful thinking could simply be a human phenomenon that persists in spite of experiential knowledge (Massey et al., 2011), accuracy incentives (Simmons & Massey, 2010), and different mood states. Certainly people are able to apply logic and reasoning to their everyday decisions, and these cognitive abilities have been shown to be vulnerable to the effects of mood (Lefford, 1946), so it is possible that desirability acts as a separate entity from mood, and exerts a similar effect on interpretation, reasoning, logic, and decision-making.

Future Directions

The effectiveness of our mood manipulation is the biggest limitation of the current study. In designing this research, we chose not to include a self-report manipulation check to assess whether participants were truly put into the mood-states that we intended. We concluded that the inclusion of such a measure could potentially skew the participants' responses toward demand characteristics. Explicitly asking people how they felt after watching the sad video clip could lead them to respond that they felt "sad," regardless if their mood actually changed. Also, asking about the participants' mood might alert them to the goals of the current study—to test whether mood influenced their predictions. Future research could use a similar paradigm to examine the Desirability Bias, but use a different mood manipulation that could perhaps be more effective at inducing positive or negative affect states.

As mentioned previously, the null results found in this current study could reflect the reality that being in any heightened affect state, regardless of direction, exerts the same causal effect on the likelihood or magnitude of wishful thinking. Therefore, the assumption would remain that there would be a difference in the amount of wishful thinking exhibited by “neutral mood” individuals, as opposed to those in positive or negative moods. Future research would benefit from the addition of this control condition by potentially isolating the wishful thinking displayed from the high-arousal conditions from that of the low-arousal condition.

Lastly, it is entirely possible that, given these results, wishful thinking simply is not affected by mood. Testing this conclusion would have to include two side-by-side tasks to be run in the same study. This study would include a wishful thinking task (similar to the survey given here, or even the marked card paradigm) as well as another task that previous research has found is influenced by mood, such as trustworthiness (Dunn & Schweitzer, 2005). If the mood effect is found for the trustworthiness task, but not the wishful thinking task, it would provide further evidence that mood does not moderate the desirability bias.

Conclusion

Despite finding no conclusive evidence for a mood effect on wishful thinking, this research does accomplish a few things. First and foremost, we discovered a robust wishful thinking effect in a partial replication of the sports team prediction paradigm employed by Massey et al. (2011). We attempted to address the apparent gap in the literature concerning factors that might influence the desirability bias by manipulating incidental (i.e., unrelated to the task) mood states of participants. Given the findings of our analyses, it appears to be the case that either happy or sad, the wishful thinking effect persists. In the case of his NCAA

tournament bracket, it matters not if John just broke up with his girlfriend or got a promotion at work, his predictions are likely to be equally biased.

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Appendix A

RE: Notice of IRB Approval by Expedited Review (under 45 CFR 46.110)

Study #: 15-0021

Study Title: Predicting Outcomes 3

Submission Type: Initial

Expedited Category: (7) Research on Group Characteristics or Behavior, or Surveys, Interviews, etc.

Approval Date: 8/07/2014

Expiration Date of Approval: 8/06/2015

The Institutional Review Board (IRB) approved this study for the period indicated above. The IRB found that the research procedures meet the expedited category cited above. IRB approval is limited to the activities described in the IRB approved materials, and extends to the performance of the described activities in the sites identified in the IRB application. In accordance with this approval, IRB findings and approval conditions for the conduct of this research are listed below.

Regulatory and other findings:

The IRB waived the requirement to obtain a signed consent form for some or all subjects because the research presents no more than minimal risk of harm to subjects and involves no procedures for which written consent is normally required outside of the research context. The IRB determined that this study involves minimal risk to participants.

Approval Conditions:

Appalachian State University Policies: All individuals engaged in research with human participants are responsible for compliance with the University policies and procedures, and IRB determinations.

Principal Investigator Responsibilities: The PI should review the IRB's list of PI responsibilities. The Principal Investigator (PI), or Faculty Advisor if the PI is a student, is ultimately responsible for ensuring the protection of research participants; conducting sound ethical research that complies with federal regulations, University policy and procedures; and maintaining study records.

Modifications and Addendums: IRB approval must be sought and obtained for any proposed modification or addendum (e.g., a change in procedure, personnel, study location, study instruments) to the IRB approved protocol, and informed consent form before changes may be implemented, unless changes are necessary to eliminate apparent immediate hazards to participants. Changes to eliminate apparent immediate hazards must be reported promptly to the IRB.

Approval Expiration and Continuing Review: The PI is responsible for requesting continuing review in a timely manner and receiving continuing approval for the duration of the research with human participants. Lapses in approval should be avoided to protect the welfare of enrolled participants. If approval expires, all research activities with human participants must cease.

Prompt Reporting of Events: Unanticipated Problems involving risks to participants or others; serious or continuing noncompliance with IRB requirements and determinations; and suspension or termination of IRB approval by an external entity, must be promptly reported to the IRB.

Closing a study: When research procedures with human subjects are completed, please complete the Request for Closure of IRB review form and send it to irb@appstate.edu.

Appendix B

Consent to Participate in Research

Information to Consider about this Research

Principal Investigator: Andrew R. Smith, Ph.D. Department of Psychology

Contact Information: smithar3@appstate.edu

You are invited to participate in a research study regarding how people make predictions about uncertain events. In this study, you will make predictions about who will win numerous football games to be played during the 2014-2015 NFL season. During this study, you will also watch a few short video clips. It is important to note that these videos cover a wide variety of topics. For example, some clips might show people in emotional situations (a stand-up comedian, people crying), while others might be quite mundane (informational video about making soft drinks). Finally, you will be asked questions about your football knowledge, personality, mood, age, gender, and education.

Participation in this study will take less than 20 minutes. There are no foreseeable risks to participating in this study. While you will not directly benefit from participating in this study, your responses will help increase our knowledge of how people make judgments about uncertain events. Please be aware that any work performed on Amazon MTurk can potentially be linked to information about you on your Amazon public profile page, depending on the settings you have for your Amazon profile. We will not be accessing any personally identifiable information about you that you may have put on your Amazon public profile page. We will store your MTurk worker ID separately from the other information you provide to us. You will be compensated with \$.50 for your participation in this study, as described in the study description on Mechanical Turk. Participating in this study is completely voluntary. Even if you decide to participate now, you may change your mind and stop at any time. You may choose not to answer any survey questions for any reason.

If you have questions about this research study, you may contact Andrew R. Smith, Ph.D. at smithar3@appstate.edu. Questions regarding the protection of human subjects may be addressed to the IRB Administrator, Research and Sponsored Programs, Appalachian State University, Boone, NC 28608 (828) 262-2692, irb@appstate.edu. This research project has been approved on 8/7/2014 by the Institutional Review Board (IRB) at Appalachian State University. This approval will expire on 8/6/2015 unless the IRB renews the approval of this research.

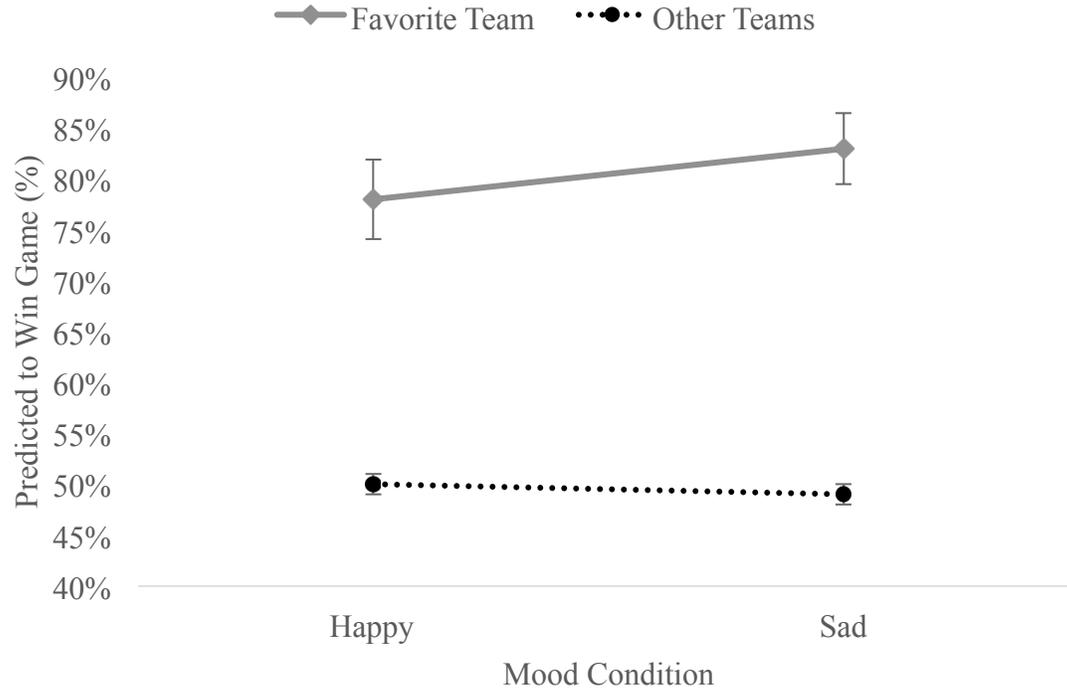


Figure 1. Optimistic bias between mood conditions. Error bars represent ± 1 standard error.