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# *PERCEPTIONS OF LUCK: NEAR WIN AND NEAR LOSS EXPERIENCES*

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Current research examining gambling behaviors has tended to focus on structural features such as the "near miss" phenomenon. Until now this research has focused mainly on a near "win" situation and ignored what can be considered a near "loss" situation (Wohl & Enzle, 2003). The present study compared the effects of participants' (N=132) near win/loss situations when playing a Wheel of Fortune slot-machine program designed to manipulate near wins and near losses. Near win/loss events were presented at a rate of 15, 30, or 45 percent of the total trials during an acquisition phase. Participants experiencing near win situations at the 45% levels persisted in their gambling behaviors more than the participants in other conditions. A better understanding of the impact of the structural variables of a slot machine, such as a near win and loss events can help explain gamblers' continued tendencies to gamble.

*Keywords:* gambling, slot simulation, near miss, luck, extinction.

Many forms of gambling exist, from casino gambling such as blackjack, bingo and craps to pull tabs, scratch offs, and lottery tickets. Gambling has become a popular hobby for many Americans, and it is estimated that 94% of Americans gamble in their lifetime and more than 10 million people in the U.S. encounter a problem with gambling during their lifetimes (Petry, 2005). Though many gamblers are aware that the odds are against them, some continue to place low probability bets because they want to "strike it rich," break even, escape from stressful life events, are high sensation seekers, or because of some other social or personal reason (Daughters, Lejuez, Lesieur, Strong, & Zvolensky, 2003). What causes gamblers to continue gambling despite repeated losses? Research in the areas of perceptions of luck (Darke & Freedman, 1997a; Teigen, 1998; Wohl & Enzle, 2003), and counterfactual thinking (Medvec, Madey, & Gilovich, 1995; Mellers, Schwartz, Ho, & Ritov, 1997; Wolfson & Briggs, 2002) may provide important insight as to why gambling behaviors persist in certain people and not others.

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## *Perceptions of Luck*

Understanding the relationship between perceptions of luck and gambling is one way to understand why gamblers continue to gamble, even when the odds are set against them. Perceptions of luck may develop from negative or positive hypothetical thoughts of alternative outcomes in the environment (Teigen, 1998), and may serve as antecedent stimuli. For example, if Jack thinks that most people win about 10 times in one hour on a slot machine, then this thought will likely be salient when he gambles on any slot machine. He will likely perceive himself as a lucky person if he wins more than 10 times and unlucky if he wins less than 10 times. Of course, there are other external variables to which Jack may

attribute the differences between his alternative and actual outcome, such as superstitions, personal skill, personification of the machine (i.e., the machine has human emotions or qualities), or rationalizations of near losses (Delfabbro & Winefield, 2000). If luck is made salient, however, an individual's perception of the stability and origin of luck becomes important in explaining persistent gambling behavior (Darke & Freedman, 1997a).

*Near Loss Situations*

One situation that has been found to cause variations in how people perceive luck is a near loss situation (Wohl & Enzle, 2002; 2003). The current definition of a near loss is "…a special kind of failure to reach a goal, one that comes close to being successful" (Reid, 1986, p.32). This definition, however, does not fully explain either near win or near loss experiences and their affect on behavior. A near win event on a slot machine has for example, the first two reels stopped on the jackpot and the last reel has stopped on a blank symbol just above the jackpot. This fits Reid's (1986) definition of a near loss in that the event is characterized as a failure (i.e., no payout), but it came close to obtaining a specific goal (i.e., all three reels landing on the jackpot). Conversely, one could conceptualize a near loss event as one that nearly results in a negative outcome whereas a near win event could be conceptualized as one that nearly results in a positive outcome.

Kassinove and Schare (2001) observed 180 undergraduate psychology students to examine the effects of the near win on persistence of play on a four-reel slot-machine simulation. Participants were required to play the slot machine for 50 trials, during which near wins were programmed into the machine at a rate of 15, 30, or 45 percent of the total trials or reel spins, followed by the extinction phase where the computer was programmed not to win or land on a near win event. Kassinove and Schare's (2001) findings indicate that participants exhibited the most persistence in the 30% (i.e., 30% of the trials were near wins) condition, as opposed to the 15% and 45% conditions.

There are three main arguments that have been presented as to why people tend to gamble longer on a 30% near win machine. Kassinove and Schare (2001) argue that the persistence in the 30% condition could be explained by operant conditioning. In other words, the near win is paired with a win enough times that it begins to serve as a secondary reinforcer. Individuals in the 15% condition may have extinguished faster than the 30% condition because they were not able associate the near win with an actual win due to the low occurrence of the near win events. Participants in the 45% condition, however, may have extinguished faster because the near win was made so salient that they began to realize that no true association between the near win and an actual win ever existed. The 30% condition appears to provide the greatest resistance to extinction.

Another explanation for the resistance to extinction in the 30% condition may be explained by using Langer's (1975) idea of an illusion of control. An illusion of control is an irrational belief that one has control over the outcome of uncontrollable situations. Reid (1986) distinguished chance and skill-based near win situations by stating that, in a skill-based near win, an individual can use the situation as a learning experience to help him/her maintain control over future experiences. For example, if an individual gets closer to a bulls eye while throwing darts, he can learn from that experience. He can remember to point his toes forward, throw straight at the target, and grip the dart through his thumb and forefinger.

Chance-based near win situations, however, should have no implications for future successes/failures because past events are independent of future events. In other words, no

matter how a person presses the button on a slot machine or taps on his/her cards before looking at them, these strategies should not improve the chance for success. Individuals in Kassinove and Schare's (2001) 30% condition may have been more likely to misattribute the situation to one that involves skill, as opposed to random chance, due to internal/stable perceptions of luck.

Dixon and Schreiber (2004) suggested that a near win situation is actually a verbal event that has been reinforced by previous near win situations. Their reasoning for why near win events are reinforcing is that the culture responds to such situations with verbal sayings such as "Wow" and "Keep trying you will get it." In other words, as children grow they are shaped with close approximations to the desired behavior. Peoples' behavior has been reinforced in these types of situations and will thus continue to persevere. Therefore, a near miss situation is one that we have learned to learn from. The effects near win situations have on persistence, or resistance to extinguishing gambling behaviors, are important to understanding gambling behaviors.

*Counterfactual Thinking*

Understanding the concept of counterfactual thinking may help explain why a near win event has such an influence on persistence in behaviors such as gambling. According to Lim and Tan (2001), counterfactual thinking is a term used for the "consideration of alternative versions of past events." These thoughts are very much focused on behavior in the form of "I should/would/could have done something differently." Mandel (2003) identified two types of counterfactual thoughts: upward and downward. Upward counterfactual thoughts are those where the imagined situation is better than the actual situation. Downward counterfactual thoughts are those where a worse alternative than that which actually occurred is imagined.

Perceptions of luck and counterfactual thinking relate to each other in that perceptions of luck are often contingent on alternative situations. Teigen (1998) found that many negative situations are seen as lucky. In other words, when a negative event occurs, people tend to think of worse possible outcomes (downward counterfactuals), which lead them to attribute the actual event as lucky. For example, consider two very serious automobile accidents. In the first, no one was injured, but both cars were completely destroyed. The individual may attribute this scenario to bad luck, being in the wrong place at the wrong time. However, if another passenger happened to be killed, in the same accident, the person may then see herself as lucky because she was not killed. The salience of the more extreme negative outcome often causes the individual to feel extremely relieved and fortunate that the situation was not worse. For example, Medvec, et al., (1995) found that bronze medalists in the Olympics were more relieved and felt more fortunate than silver medalists because they thought of the alternative outcome of not winning a medal at all.

Relating perceptions of luck, counterfactuals, and near win/loss events to gambling, Wohl and Enzle (2003) asked, "Who would feel luckier, someone who just missed a jackpot, or someone who just missed a bankrupt?" Participants were asked to spin a Wheel of Fortune type game in which they either nearly missed a bankrupt or nearly missed a jackpot. They were then asked to place a bet on a game of roulette. After the bet was made, participants were asked to complete the BIGL scale and various questions regarding counterfactual thoughts. The results supported the notion that luck is related to specific counterfactual thoughts in that narrowly missing the bankrupt caused individuals to use downward counterfactual thoughts more often, to have a higher belief in personal good luck (measured on the BIGL), and to wager more on the subsequent roulette game. Narrowly missing the

jackpot caused individuals to use upward counterfactuals more often and have a lower belief in personal good luck, leading to lower wagers on the roulette game. The information above provides a link between the near win/loss event and perceptions of luck, which can be important in explaining gambling persistency and betting patterns.

*Extinction*

In order to understand why certain people persist in gambling, it is important to address the concept of extinction. Extinction is "the procedure of withholding reinforcement for a previously reinforced response" (Pierce & Cheney, 2004, p. 100). This procedure causes the specific behavior to decline and eventually terminate. However, during the early stages of extinction, the behavior is sometimes emitted at a rate faster than the rate during reinforcement. After this "extinction burst," the participant will slowly decrease the frequency of the behavior until it has been completely terminated. It has been shown that different schedules of reinforcement can impact the rate at which a particular behavior is extinguished (Pierce & Cheney, 2004). For example, intermittent schedules of reinforcement are much more resistant to extinction than continuous schedules of reinforcement because the individual is not expecting reinforcement every time the behavior is produced. For gambling behaviors, it is believed that variables, such as a near win event, can decrease the rate of extinction (Kassinove & Schare, 2001).

*The Current Study*

The current study examined the impact of near win and near loss situations on perceptions of luck and resistance to extinction on a Wheel of Fortune slot-machine simulation. Participants were in a 15, 30, or 45 percent condition and either a near win, near loss, or control condition. Other than near wins, near losses, and wins, all other trials were consistent throughout the conditions. After the first 200 trials/spins, the computer began an extinction phase, during which no near win/loss or winning outcomes occurred. Extinction trials were the same for all participants. During the extinction phase, participants were allowed to terminate slot play at their accord. After terminating play, participants were given the BIGL and Locus of Control scales. These scores were compared across all six conditions to determine the impact a near win/loss had on an individual's perception of luck, locus of control, and resistance to extinction. It was hypothesized that participants in the high density (45%) near win condition would continue to play longer during extinction.

## METHOD

*Participants*

Students signed up to participate using the Psychology Study Participant Manager, an online database through which students at the university receive credit in psychology classes for participating in research. The sample consisted of 132 undergraduate students from the University of Northern Iowa (66 males and 66 females). The age of the participants ranged from 18 to 52 with the majority falling between 18 and 21 (82.6%). Eligible participants were those who indicated that they had gambled on a slot machine (online or at a casino) within their lifetime, to ensure general familiarity with slot machines. Participants were also prescreened for pathological gambling and those people were not allowed to participate.

*Design*

The study employed a 2 (near win/ near loss) X 3 (15%, 30%, 45% of near win/loss events/trials) between-subjects design and an additional control group. The dependent measures included scores on the BIGL and Levenson's Locus of Control Scale, as well as

the number of trials participants play on the slot machine during an extinction phase.

*Materials*

*South Oaks Gambling Screen (SOGS).* The SOGS is a 16-item questionnaire commonly used as an assessment for potential problem gamblers and considered to be a highly valid and reliable test for measuring pathological gambling (Lesieur & Blume, 1987; Cote, Caron, Aubert, Desrochers, Ladouceur, 2003). The SOGS was used as a prescreening tool to ensure that no probable pathological gamblers participated in the study.

*Locus of Control Scale.* Levenson's Locus of Control Scale is a 24-item questionnaire used to measure the level of an individual's perception of control over various life events (Levenson, 1981). The questionnaire contains three subscales including an internal scale, a powerful others scale, and a chance scale. The internal subscale measures an individual's belief that he or she has control over contingencies in the environment. The powerful others and chance subscales measure an external locus of control, but are distinct in that one measures unpredictable (i.e., chance) perceptions, and the other measures predictable (powerful others) perceptions.

*Belief in Good Luck Scale.* The BIGL is a 15-item questionnaire designed to measure perceptions of luck (Darke & Freedman, 1997b). The BIGL has been shown to be a reliable and valid instrument for measuring belief in good luck (Darke & Freedman, 1997b). Researchers have found that higher scores on the BIGL are associated with greater expressed expectations of positive outcomes in future situations (Darke & Freedman, 1997a; Watt & Nagtegaal, 2000).

*Apparatus*

The simulated three-reel slot machine, called Wheel of Fortune, was created using Visual Basic.Net and is a modified version of one created by MacLin, Dixon, Robinson, and Daugherty (2005). Using this simulation, the researcher has the ability to vary the slot machine simulation to display different backgrounds, symbols, sounds, and reinforcement schedules. Each reel consists of five possible symbols. The reel configuration from top to bottom is \$1, 25¢, 50¢, bankrupt, 50¢, \$2, \$1, 25¢, \$1, 25¢, jackpot, 50¢, and 25¢. Between each symbol is a blank position/space. Above each of the reels is a Wheel of Fortune image. Below the reels is a "Credits" display box and a "Win" display box that displays the total number of credits the user has left and the amount won for each spin, respectively.

The slot-machine simulation is operated by a spin button located directly below the second reel. Clicking on the spin button with the mouse deducts 1 credit from the credits box and activates all three reels, causing them to move/spin from top to bottom. The program reads an input file that contains numbers, which represent the stopping position of each reel after a set amount of time, has elapsed. Each reel stops independently after an allotted time. If the three reels stop with the same numbers/symbols on the pay line, a win or loss equal to that amount will be added to or subtracted from the "Credits" display box. On any given spin the user can win or lose their entire total credits by three jackpots or bankrupts coming to a stop on the payout line. Along the bottom of the screen is a "cash-out" button that will terminate the program upon being clicked. Sounds are included during each click of the spin button, during spin time, and each time a reel stops. There are also sounds that occur when a jackpot or a bankrupt symbol stops on the payout line. The simulation records the number of trials during extinction, the number of total trials/spins, the number of credits, the stopping points of the reels for each spin, the total amount won, and the total number of near win/loss events.

*Procedure*

Participants were asked to sign an informed consent form providing an overview of the study. Participants were then administered the SOGS, BIGL, and the Locus of Control Scale. Participants receiving a SOGS score of 5 or higher were asked to perform a non-gambling-related task and were not used for the current study. After each participant completed the surveys, the participants were given instructions about the slot-machine game they would be playing, the number of credits they would start with (100), and how to terminate play. They were also instructed regarding the remaining questionnaires they would fill out during the session, as well as the prize for which they would be competing with other participants ($10 gift certificate to go to the person who cashed out with the highest number of credits).

After the participants were read the instructions, they were led into separate 8 ft by 13 ft lab rooms. Each room had at least one computer with a similar setup of multiple desks. Once the participant was seated, the research administrator showed him/her where the cash out and spin buttons were, as well as the light switch that was used to inform the administrator that the individual had ceased play. Participants began the experiment with 100 credits. When the participant pressed the spin button, 1 credit was subtracted from the total credits and the three reels began in motion from top to bottom. The first 50 trials, or the acquisition phase, included 15 separate wins: three were $0.25, eight were $0.50, and four were $2. The participants were directed to continue play until they decided to stop playing.

A separate input file was created for each condition/group. Two phases occurred during the study: the acquisition phase and the extinction phase. The acquisition phase consisted of 50 trials, 28 of which were identical across all conditions. Of these 28 trials, 15 wins occurred: three 25¢ wins, eight 50¢ wins, and four $2 wins. This programming was done to ensure that each participant would win at a rate comparable to a casino slot machine. The remaining trials that were identical throughout the conditions were all losses. Depending on the condition, the input files were created to present near win or near loss events at a rate of 0, 15, 30, or 45 percent of the remaining 22 trials during the acquisition phase. For those conditions less than the 45%, the remaining trials were losses with a maximum of one symbol on the payout line. A near win event was defined as an occurrence of a jackpot symbol stopping on the payout line for the first two reels and the third reel jackpot symbol stopping before or after the payout line. A near loss event was defined as an occurrence of a bankrupt symbol stopping on the payout line for the first two reels and then the third jackpot symbol stopping before or after the payout line. Any of the 28 trials that did not consist of a near win/loss event were the same throughout conditions.

On trial 50, the slot simulation went into an extinction phase. The extinction phase consisted of 200 additional trials with no wins or near win/loss events. Once participants decided to cease play, the researcher administered the BIGL. Participants were then asked to wait quietly until everyone else had finished, at which point the person with the top score was paid the $10 gift certificate.

## RESULTS

Because we were interested in responding during extinction, participants who terminated the session prior to the extinction phase (i.e., 50 trials) were excluded from all subsequent analyses, thus eliminating 24 of the original 132 participants. A repeated measures analysis for changes in BIGL scores from pre to post test across nears and density determined that there was a significant difference, $F$ (1, 86) = 6.512, $p < .05$, MS = 57.91. There was no difference in the interaction between the nears and density of the nears, $F$ (2, 86) =

.871, $p$ = .422, MS = 7.75, or from just the density alone, $F$ (2, 86) = .984, $p$ = .392, MS = 8.43. However, the nears alone may have some affect on BIGL scores though the difference was not statistically significant, $F$ (1, 86) = 3.890, $p$ = .052, MS = 34.59.

A significant difference was found between pre and post BIGL scores in three of the seven conditions. The near win 15%, F(1, 18) = 2.27, p = .150, MS = 17.54, near win 30%, F (1,15) = .004, p = .952, MS = 8.00 E-02, near win 45%, F (1,13) = .387, p = .545, MS = 3.316, and near loss 30% conditions, F (1,15) = .929, p = .350, MS = 5.355, were all not significantly different from pre to post test. However, the near loss 15%, F (1,12) = 6.80, p < .05, MS 39.61, near loss 45%, F (1,13) = 16.602, p < .01, MS = 52.066, and control conditions, F (1,14) = 6.921, p< .05, MS 60.854, were all significantly different from pre to post test.

Near win conditions were not more resistant to extinction than the near loss conditions. No significant differences were found for age, $F$ (12, 107) = .1.240 $p$ = .268, MS = 1378.74, gender, $t$ (106) = 1.262, $p$ = .210, MD = 8.21, year in school, $F$ (4, 107) = .381 $p$ = .822, MS = 444.97, or ethnicity, $F$ (3,107) = .791 $p$ = .502, MS = 908.26, in regards to the number of trials played. A 2 X 3 ANOVA revealed no significant difference in trials played for the interaction between nears and density, $F$ (2, 86) = 2.19 $p$ = .118, MS = 2502.31, or just the nears alone, $F$ (1, 86) = .053 $p$ = .819, MS = 60.60. However, a significant difference across density was found, $F$ (2, 91) = 3.49, $p$ < .05, MS = 4002.13 (see Figure 1). A Post Hoc analysis using Tukey's HSD indicated that the 30% condition was significantly less than the 45% condition ($p$ < .05, SE = 8.41).

There was no significant difference between the near loss 15% and 30%, $t$ (27) = -.591, $p$ = .560, the near loss 15% and 45%, $t$ (25) = -.187, $p$ = .853, or the near loss 30% and 45%, $t$ (28) = -.414, $p$ = .682. Though there was also no significant difference between the near win 15% and 45%, $t$ (31) = 1.527, $p$ = .137, there was a difference between the near win 45% and the near win 30% ($t$ (28) = -3.173, $p$ < .01), and the difference between the near win 15% and near win 30% approached significance ($t$ (33) = -1.96, $p$ = .058).

Finally, scores on the BIGL and the external subscale of the LOC were significantly positively correlated ($r$ = .316, $p$ < .01). The external subscale was also significantly correlated with the internal subscale ($r$ = -.290, $p$ < .05) and the powerful others subscale ($r$ = .447, $p$ < .01).

## DISCUSSION

The present study examined the relationship between near win/loss situations, perceptions of luck, and resistance to extinction on a slot-machine simulation. The current results suggest that a higher density (45%) of near win and near loss trials lead to a greater resistance to extinction than the lesser densities. However, further investigation suggests that most of this variance between densities may be explained in the near win situation and not the near loss (i.e., the near win 45% is significantly different from the near win 30%). Kassinove and Schare (2001) argued that near wins serve as a secondary reinforcer and the current data partially support this notion. The reason the data only partially support this argument is because the only significant differences were in the near win 45% condition.

An explanation may be that the 45% conditions can be experienced as both exciting and frustrating. The stimulation may stem from what Cote et al. (2003) attribute to outcome expectancy. In other words, the gambler is actually anticipating a win or a loss and will often experience mixed emotions during near experiences. Immediately following an increase in arousal, the gambler experiences the opposite emotion. For example, in the near win experience, frustration comes after realizing that they have not obtained the outcome

they desired (i.e. the jackpot). Now the gambler has two choices, he/she could: 1) stop playing the machine or 2) continue to play the machine.

Research suggests that people may continue to gamble due to an irrational belief that they have control over the outcome of the situation. This 'illusion of control' is often confused by the gambler with skill based events and is probably learned through verbal reinforcements in the culture (Langer, 1975). The persistence in the near win 45% may be a result of the gamblers fallacy, or the belief that the odds for a win increase or decrease based on previous outcomes. It is likely that the higher number of near win situations presented will cause an increase in the salience of a jackpot. Therefore, the associations and salience of the jackpot will be much stronger in the near win 45% than in the near win 30% and 15%. In the near win 45% condition the associations and salience of a jackpot lead to verbal behavior, such as "A jackpot must be just around the corner." It is likely that the participants in the 45% condition have carried over this verbal behavior to the extinction phase causing them to play longer. In the other near win conditions, the jackpot is not as salient and the verbal behavior is probably focused more on how much they were losing, causing them to terminate play much earlier.

This differs from Kassinove and Schare (2001) in that 30% near wins were causing the most resistance to extinction in slot play. It is likely that the 45% near wins in this study were leading to an over-saturation of near wins (reinforcements). One explanation for why this did not occur in the current studies' 45% condition is because bankrupts existed and to some extent took away from the 'near win' factor. This could be why the 30% condition was not significantly different in this study, but was in Kassinove and Schare's (2001). Another reason for this difference could be the combination of the payout rate with the percentage of near wins. In other words, if the individual is winning more frequently and experiencing near win situations, he or she may gamble more frequently. Future studies will need to address this issue and control for different payout rates in relation to the percentage of near wins.

There were no significant differences across density in the near loss conditions. One explanation to account for this is that a near loss is in the same stimulus class as a normal loss (i.e., both experiences result in a loss). Therefore, there should be no difference between the near loss conditions and the control condition, because the near loss does not appear to function beyond the 'loss' stimulus class. In other words, the gamblers in the near loss conditions are experiencing very similar situations to those in the control condition.

Another finding of the current study is that BIGL scores were positively correlated with the external subscale of Levenson's locus of control questionnaire. Darke and Freedman (1997b) found a similar correlation when constructing the BIGL and suggest that people who report that outcomes in their lives are mostly determined by external factors, such as luck, also are reporting a higher perception of good luck. Darke and Freedman (1997b) also suggest that the BIGL is an assessment of a stable perception of luck over time, however, our results challenge this notion. The results indicate that scores on the BIGL changed from pre to post test, similar to the findings of other research examining between subjects differences (Wohl & Enzle, 2002; Wohl & Enzle, 2003).

The current results do not fully support Wohl and Enzle's theory (2002), which argues that games of chance deprive people of any way of asserting control over the outcomes. Possessing an illusion of control that one can manipulate luck to work in his/her favor during these games may be one way that people manage these situations. Though Wohl and Enzle (2003) have been successful in manipulating their participants' perceptions

of luck, we have not been able to replicate their findings (Brummer, Daugherty, & MacLin, 2004; Sauceda, Pisney, Decker, Daugherty, & MacLin, 2004). Their findings indicate that individuals tend to feel more personal luck when avoiding something aversive (i.e. the bankrupt) and less luck when avoiding something rewarding (i.e. the jackpot). The current findings offer a more extensive explanation in that perceptions of luck do vary systematically across conditions. In each condition the pre and post test scores on the BIGL drop, with the exception of the near win 45%. However, the differences in pre to post test on the BIGL systematically decrease as the number of near win experiences increases. Most importantly, the near win 45% condition actually reports a higher post test BIGL score. It appears that the near wins are maintaining the internal quality of luck.

According to Teigen et al., (1999) bad luck situations are more likely to be defined as a bad event that got worse, whereas a good luck is situation is usually defined as a bad situation turned good. The near win is a stimulating event that has been shown to increase gambling persistency. Participants experiencing a higher density of near wins may actually start to believe that the jackpot is "just around the corner" and feel prematurely lucky. These individuals will use luck to manipulate the outcome of the situation on higher near win density machines, more so than lower density machines.

The near loss conditions, again, are likely to be in the same stimulus class as a normal loss, and therefore participants should report similar difference scores on the BIGL in the near loss and control conditions. In Wohl and Enzle's (2002) near loss condition participants still won something (i.e. ten tokens). This is a situation that would fit perfectly into Teigen et al.'s (1999) definition of what a lucky event should entail. The near loss experience in the current study is much similar to what Teigen et al. (1999) define as a bad luck situation. Participants not only lost on each of the near loss events, but these events continued to occur throughout the study.

It may also be true that counterfactual thoughts also change or become less salient with the repeated exposure of the nears. This may be why the current study has found different results than what previous research has. The near win conditions may be using a counterfactual "I almost won the jackpot", while the near loss condition counterfactual may be much less positive. Future research could examine the specific thought processes occurring during the near win/loss events using a think out loud method. The current study extends the knowledge on the relationship between specific gambling situations, perceptions of luck, and resistance to extinction.

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