

Can a Near Win Kindle Motivation? The Impact of Nearly Winning on Motivation for Unrelated Rewards

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Abstract

Common intuition and research suggest that winning is more motivating than losing. However, we propose that *just* failing to obtain a reward (i.e., nearly winning it) in one task leads to broader, positive motivational effects on subsequent unrelated tasks relative to clearly losing or actually obtaining the reward. We manipulated a near-win experience using a game app in Experiments 1 through 3 and a lottery in Experiment 4. Our findings showed that nearly winning in one task subsequently led participants to walk faster to get to a chocolate bar (Experiment 1), salivate more for money (Experiment 2), and increase their effort to earn money in a card-sorting task (Experiment 3). A field study (Experiment 4) demonstrated that nearly winning led people to subsequently spend more money on desirable consumer products. Finally, our findings showed that when the activated motivational state was dampened in an intervening task, the nearly-winning effect was attenuated.

Keywords

motivation, near wins, rewards

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People often come so close to obtaining a reward that they can “almost taste it,” only to lose it in the end. Think of an auction that you nearly won, a deal that you almost clinched, or the lottery number that was so close. Current research focuses on the broader motivational consequences of such experiences of nearly obtaining a reward, when winning the reward is determined by chance. Common intuition as well as research would suggest that failing to obtain rather than successfully obtaining a reward is likely to dampen people’s motivational state (Cummins, Nadorff, & Kelly, 2009; Reeve, Olson, & Cole, 1985). However, we propose that *just failing* (i.e., nearly winning) to obtain a reward in one task, compared with clearly losing or obtaining the reward, could induce a more general motivational state leading people to invest additional resources in subsequent unrelated tasks.

Research has shown that people are motivated to approach rewards (Elliot, 2006); as they approach a reward, the motivation to obtain it intensifies, an effect termed the *goal-gradient effect* (Hull, 1932; Kivetz, Urminsky, & Zheng, 2006). In explaining the goal-gradient

effect using prospect theory (Kahneman and Tversky, 1979), Heath, Larrick, and Wu (1999) suggested that a goal or reward acts as a reference point (see also Carver & Scheier, 1998). Consequently, according to the prospect-theory value function, the benefits people achieve from exerting one unit of effort are subject to diminishing sensitivity away from the reference point; thus, the motivation to achieve the reward or goal should intensify as people approach it. Moreover, this motivation to attain a goal can remain active until the goal is fulfilled (Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trötschel, 2001; Lewin, 1936; Zeigarnik, 1927).

These studies raise the intriguing possibility that the experience of nearly obtaining a reward may lead to an intensified but unsatisfied motivational state. Preliminary support for this idea comes from research on addiction, which shows that nearly winning in a game results in

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addiction to the same game (Cote, Caron, Aubert, Desrochers, & Ladouceur, 2003; Dixon & Schreiber, 2004; Reid, 1986) and could lead to dopamine release in the limbic areas of the brain (Clark, Lawrence, Astley-Jones, & Gray, 2009). Dopamine release in the limbic areas has been implicated in motivating behaviors related to desirable outcomes (Depue & Collins, 1999; Salamone, Correa, Farra, & Mingote, 2007).

Drawing on these multiple streams of research, we questioned whether a near win in one task could induce a general motivational state that would subsequently motivate people to seek a broader range of desirable outcomes. Imagine, for example, an individual getting closer to obtaining a reward. According to the goal-gradient theory (Hull, 1932), this individual will be more motivated to obtain the reward as he or she approaches it; if he or she just misses it, the motivation to obtain the reward should still be active. As the original reward is now unavailable, he or she may try to satiate this activated motivation by seeking out other unrelated but available rewards. Thus, this activated general motivational state should increase the individual's motivation to exert effort for other salient and available desirable outcomes, even in unrelated domains, a phenomenon we refer to as the *nearly-winning effect*.

We further propose that merely missing a reward by a narrow margin is not sufficient to drive the nearly-winning effect. Because anticipating a reward increases people's motivation to obtain the reward (Depue & Collins, 1999), the nearly-winning effect should emerge only when people anticipate the reward until the end of the task. If the anticipation of the reward is aborted early on, then the nearly-winning effect should not be observed, regardless of whether the reward was narrowly missed.

We report five experiments examining the nearly-winning hypothesis. In all experiments, data were collected in a single wave and analyzed only after all the data were collected. We report all conditions as well as the dependent variables analyzed for this research.

Experiment 1

Our hypothesis suggests that nearly winning in one task should subsequently motivate one to obtain other unrelated but desirable outcomes. Drawing on research showing that motivation can be measured by how fast one approaches a desirable outcome (Aarts, Gollwitzer, & Hassin, 2004), we measured how fast participants walked toward a desirable outcome after they experienced a near win versus a clear loss. In addition, our hypothesis suggests that if anticipation of the reward is aborted early on, then the nearly-winning effect will not emerge, even if the reward is narrowly missed. We tested this part of the hypothesis as well.

Method

The sample size of this study was determined on the basis of a power analysis using G*power (Version 3.1; Faul, Erdfelder, Lang, & Buchner, 2007). We assumed an effect size similar to that in past research in which a conceptually similar dependent variable was used (Cohen's $d = 0.94$; Aarts et al., 2004). The power analysis indicated that a sample size of 51 participants was required for the study to have 85% power to detect such an effect with an alpha level of .05. We decided to stop the study either when 51 participants had completed the study or when as many participants as possible had completed the study, provided that the number was close to 51 (i.e., ± 5).

Fifty participants (24 men, 23 women; mean age = 21.81 years, $SD = 2.36$; demographic data were missing for 3 participants) who were recruited from an underpass on a university campus completed the study. Participants were informed that they would be evaluating a prototype of a phone game app that was in the first stage of development. They were further informed that to get an accurate measure of their game experience, they would play the game before they evaluated it. If they won the game, they would get a pen as a reward. Participants wore headphones while playing the game, which was designed specifically for this research and had built-in sound effects. The game contained a grid of 16 tiles; half of the tiles covered a rock, and the other half covered a diamond (see Fig. S1 in the Supplemental Material available online). Participants clicked on the tiles one by one, and if they found eight diamonds without uncovering a rock, they won the game.

Participants were randomly assigned to play one of the three versions of the game: narrow margin with anticipation, narrow margin without anticipation, or clear loss. In all the versions of the game, participants lost the reward, but the nature of loss varied across conditions. In the clear-loss condition, participants found one of the eight diamonds on the first click. In the narrow-margin, anticipation condition, participants found seven diamonds but missed a diamond on the last trial. In the narrow-margin, no-anticipation condition, participants found seven diamonds but missed a diamond on the second trial. Therefore, although participants in both of the narrow-margin conditions missed the reward by a single diamond, anticipation of the reward was aborted early in the narrow-margin, no-anticipation condition and late in the narrow-margin, anticipation condition. To be consistent with our cover story, we asked participants who had finished playing the game to evaluate how engaging and different it was, using 7-point scales (1 = *strongly disagree*, 7 = *strongly agree*); the ratings did not differ by condition ($ps > .1$). Participants were then instructed to drop their surveys at a second booth set up at the other end of the corridor. They were further informed that they

could collect a thank-you gift (a chocolate bar) from the second booth. We surreptitiously recorded the time it took participants to walk the distance between the two booths. As noted earlier, a faster walking speed would imply an enhanced motivation to seek the chocolate bar, unrelated to the game. Thus, the time taken to walk directly from the first to the second booth became the main dependent variable.

Results

An analysis of variance (ANOVA) revealed a significant difference in walking time between conditions, $F(2, 47) = 6.41, p < .004, \eta_p^2 = .214$. Simple-effects analyses showed that participants in the narrow-margin, anticipation condition walked faster ($M = 52.27$ s, $SD = 7.52$) to get the chocolate than those in the narrow-margin, no-anticipation condition ($M = 64.56$ s, $SD = 13.55$), $F(1, 47) = 12.39, p = .001, d = 1.11$. The estimated difference in walking speed between the narrow-margin, anticipation and narrow-margin, no-anticipation conditions was -12.29 s (95% confidence interval, or CI = $[-19.32, -5.27]$). These participants also walked faster than those in the clear-loss condition ($M = 60.47$ s, $SD = 7.05$), $F(1, 47) = 5.98, p < .02, d = 1.13$. The estimated difference in walking speed between the narrow-margin, anticipation and clear-loss conditions was -8.21 s (95% CI = $[-14.96, -1.45]$). Participants in the narrow-margin, no-anticipation condition took as long as those in the clear-loss condition to seek the chocolate bar, $F(1, 47) = 1.54, p > .2$.

Discussion

Experiment 1 demonstrated that people who narrowly missed the reward were more motivated to seek an unrelated but desirable outcome than those who clearly lost. However, when the anticipation of the reward was aborted early in the first task, the nearly-winning effect was attenuated.

One could argue that narrowly missing a reward adversely affected mood or heightened arousal, thereby leading participants to walk faster for the chocolate. If this were the case, then participants in the narrow-margin, no-anticipation condition should have walked faster than those in the clear-loss condition. In our subsequent experiments, we attempted to further rule out mood-related and arousal-related accounts.

One alternative account could be that the increased walking speed was related to self-affirmation (Steele, 1988). One could argue that people who nearly won perceived the game to be easier than did those who clearly lost and were therefore more likely to attribute the loss to themselves. These participants, therefore, sought to affirm themselves by walking faster for the chocolate. If this

account is valid, then participants in the narrow-margin, no-anticipation condition should have walked faster than those in the clear-loss condition. We further ruled out this account in a post hoc study (see the Supplemental Material) showing that the extent to which participants attributed the game's outcome to themselves was no different across conditions, $F < 1$.

One limitation of this experiment is that because the chocolate was given as a thank-you gift, participants could have viewed it as a related reward. In our subsequent experiments, we attempted to address this limitation. In addition, we reran Experiment 1 with more stringent power requirements and replicated the main nearly-winning effect documented in Experiment 1 (see the appendix).

Experiment 2

Drawing on prior research (Depue & Collins, 1999), we hypothesized that the motivational state induced in response to a near win should enhance the desire to seek unrelated high-desirability outcomes but not low-desirability outcomes. In this study, we used a physiological measure—salivation in response to a reward—to examine the generalizability of the nearly-winning effect. Research has shown that motivation to obtain a reward increases salivation in anticipation of the reward (Gal, 2010). Therefore, we tested whether nearly winning could subsequently enhance participants' salivation in response to an unrelated object that was highly desirable.

Method

We assumed a similar effect size (Cohen's $d = 0.77$) as in past research using the same dependent variable (Gal, 2010). The power analysis indicated that a sample size of 100 participants was required for the study to have 85% power to detect such an effect with an alpha level of .05. Taking into account no-shows, we opened the study to 120 participants to achieve this target. We decided to stop the study when all the signed-up participants who showed up had completed the study, provided that this number was close to 100 (i.e., ± 5).

Ninety-nine students recruited from an Asian university participated in a lab study (35 men, 63 women; mean age = 22.13 years, $SD = 1.75$; demographic data were missing for 1 participant). Before conducting the analyses, we excluded data from one participant whose saliva bag was missing and two participants who experienced technical difficulties (e.g., graphics or sound not working). There were no other exclusions. First, we measured participants' baseline salivation level for 2 min while they looked at a fixation cross. Participants then played the game used in Experiment 1 and were randomly assigned

to either the clear-loss condition (as in Experiment 1) or to a near-win condition (which was the same as the narrow-margin, anticipation condition in Experiment 1). Next, participants used a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*) to evaluate how exciting, likable, engaging, and different the game was; the composite score ($\alpha = .74$) of game evaluation did not differ by condition ($p > .14$). Participants then responded to mood and arousal measures (see the Supplemental Material) that also did not differ by condition ($p > .3$).

Finally, participants viewed a picture showing either numerous \$50 bills (Singapore dollars; high-desirability condition) or three 5¢ coins (low-desirability condition). Participants' salivation levels were measured, again for 2 min, while they looked at the money images. Our main dependent variable was the difference between the participants' salivation levels at baseline and while viewing the money images. An increase in the salivation level while viewing money images, compared with the baseline, was taken to indicate an enhanced motivation to seek the money depicted in the image.

Results

We computed a difference score for the change in the salivation level by subtracting the baseline level from the level measured while the participants viewed the money images. A two-way ANOVA conducted on the difference score revealed a significant interaction between outcome-type condition (near win vs. clear loss) and desirability condition (high desirability vs. low desirability), $F(1, 92) = 4.58, p < .04, \eta_p^2 = .047$. In the high-desirability condition, participants who nearly won in the preceding task showed an increase in salivation level ($M = 0.67$ g, $SD = 0.95$) compared with those who clearly lost ($M = -0.29$ g, $SD = 0.85$), $F(1, 92) = 17.246, p = .0001, d = 1.07$. The estimated difference was 0.97 (95% CI = [0.505, 1.43]). However, in the low-desirability condition, there was no difference in salivation-level changes in participants who had nearly won ($M = -0.13$ g, $SD = 0.52$) and those who had clearly lost ($M = -0.39$ g, $SD = 0.83$), $p = .26$. These results indicate that a near win enhanced salivation only for the high-desirability object and not for the low-desirability object.

Discussion

In our first two experiments, we showed that nearly obtaining a reward (compared with losing a reward) enhanced people's desire to seek other unrelated but desirable outcomes. In the next two experiments, we examined whether nearly winning could be more motivating than winning.

Experiment 3

This experiment was aimed at providing additional evidence for the motivational account. If a near win induces a general motivational state that leads one to seek unrelated but desirable outcomes, then dampening this motivational state in an intervening task should attenuate the nearly-winning effect. However, if nonmotivational accounts (e.g., self-affirmation or arousal) underlie the nearly-winning effect, then dampening the motivational state should not attenuate the nearly-winning effect.

Method

Following the approximate sample sizes employed in previous relevant research (Ramanathan & Menon, 2006), we targeted a predecided sample size of 180 participants. Taking into account no-shows, we opened up 200 slots to achieve this target. We decided to stop the study when all signed-up participants who showed up had completed the study, provided that this number was close to 180 (i.e., ± 5). A total of 179 students recruited from an Asian university (83 men, 96 women; mean age = 21.75, $SD = 1.58$) played and evaluated the same game as in the previous studies. Along with the near-win and clear-loss conditions, we also included a win condition in which participants managed to find all eight diamonds and obtained the reward. Before conducting analyses, we excluded data from 4 participants who experienced technical difficulties. There were no other exclusions.

We manipulated the dampening of motivational state using an odor-sampling task. Past research has demonstrated that a whiff of an unpleasant odor can dampen an activated motivational state, thereby reducing people's desire for subsequently encountered unrelated hedonic consumption products and experiences (Wadhwa, Shiv, & Nowlis, 2008). After playing the game, half of the participants (undampened-motivation condition) sampled a neutral odor (water), and the other half (dampened-motivation condition) sampled an unpleasant odor (a cleaning agent). Participants used a 7-point scale (1 = *not at all*; 7 = *very*) to evaluate how appealing, bad, likable, and pleasing the odor was. Subsequently, they responded to mood and arousal measures; results for these measures did not differ by condition, $ps > .1$ (see the Supplemental Material).

Participants then engaged in a purportedly unrelated Card Arranging Reward Responsivity Objective Task (CARROT; Al-Adawi & Powell, 1997; Al-Adawi, Powell, & Greenwood, 1998; Kambouropoulos & Staiger, 2001; Ramanathan & Menon, 2006). The CARROT has been used as a reliable way to measure people's motivation to seek rewards and has been linked with dopaminergic

motivation (Powell, Al-Adawi, Morgan, & Greenwood, 1996). CARROT consists of four trials, each of which requires participants to sort a stack of cards. Five digits are printed on each card, and one of the digits is 1, 2, or 3. Participants had to sort and place cards in one of three trays (labeled 1, 2, and 3) according to the target digit on each card.

In the first trial, participants sorted 60 cards as fast as they could. The time spent sorting these 60 cards was used as a baseline. In the second trial, participants sorted 100 cards as fast as they could until they were stopped at the individually calibrated baseline time recorded in the first trial. The third trial was the same as the second trial, except that participants were rewarded with 20 cents for every 5 cards accurately sorted. We kept a box containing money in full view of the participants while they were sorting cards in the third trial. The fourth trial was the same as the second trial and was included to control for practice and fatigue effects. Motivation was assessed by measuring the difference in the speed of accurate card sorting between the rewarded trial (i.e., Trial 3) and the nonrewarded trial (i.e., Trial 2). Sorting speed was computed by dividing the number of cards accurately sorted by the individually calibrated time taken to sort the cards that had been measured and established in the first trial. A higher positive difference score would imply faster sorting speed and thus an enhanced motivation to earn money.

Results

An ANOVA with Trial 4 sorting speed included as a covariate showed a significant interaction between outcome-type condition (win vs. near win vs. clear loss) and motivational-state conditions (dampened motivation vs. undampened motivation), $F(2, 168) = 3.57, p = .03, \eta_p^2 = .041$ (Table 1). Further analyses of the sorting-speed difference between the rewarded trial (i.e., Trial 3) and the nonrewarded trial (i.e., Trial 2) showed that when the motivational state was undampened, participants in the near-win condition ($M = 0.1455$ cards/s, $SD = 0.1116$) sorted the cards faster to earn the reward than those in the clear-loss condition ($M = 0.0032$ cards/s, $SD = 0.133$), $F(1, 168) = 20.22, p < .0001, d = 1.16$. The estimated difference was 0.142 cards/s (95% CI = [0.08, 0.205]). The participants in the near-win condition also sorted the cards faster than those in the win condition ($M = 0.0062$ cards/s, $SD = 0.1152$), $F(1, 168) = 19.36, p < .0001, d = 1.23$. The estimated difference was 0.139 cards/s (95% CI = [0.077, 0.202]). However, in the dampened-motivation condition, the nearly-winning effect was attenuated. Specifically, participants in the near-win condition ($M = 0.0758$ cards/s, $SD = 0.1059$) sorted the cards as fast as those in the clear-loss condition ($M = 0.0469$ cards/s, $SD = 0.1328$), $F(1, 168) = 0.81, p > .3$, and those in the

Table 1. Results From Experiment 3: Difference in Card-Sorting Speed Between the Rewarded and Nonrewarded Trials for Clear Losses, Wins, and Near Wins

Condition	<i>n</i>	Difference in card-sorting speed (cards/s)	
		Mean	<i>SD</i>
Clear loss			
Dampened motivation	28	0.0469	0.1328
Undampened motivation	29	0.0032	0.1330
Win			
Dampened motivation	29	0.0260	0.1268
Undampened motivation	29	0.0062	0.1152
Near win			
Dampened motivation	30	0.0758	0.1059
Undampened motivation	30	0.1455	0.1116

Note: The means and standard deviations reported are marginal means and standard deviations adjusted for the covariate.

win condition ($M = 0.0260$ cards/s, $SD = 0.1268$), $F(1, 168) = 2.47, p > .1$.

Discussion

Nearly winning as opposed to clearly losing or winning the game motivated participants to expend more effort to earn money in a subsequent unrelated task. When the activated motivational state was dampened in an intervening task, the nearly-winning effect was attenuated, thus supporting our motivational account.

Experiment 4

In Experiment 4, we examined the generalizability of the nearly-winning effect by manipulating the nearly-winning experience using a scratch-off lottery card in a field experiment conducted in a retail store. We predicted that people who nearly won should spend more money on purchases to satisfy the induced motivational state.

Method

Following the method of the field experiment in Kivetz et al. (2006), we targeted a predecided sample size of 162 participants for a three-cells between-subjects design. We decided to stop the study either when 162 participants had completed the study or when as many participants as possible had completed the study, provided this number was close to 162 (i.e., ± 5).

We recruited 168 shoppers outside a fashion accessories store (3 males and 164 females; gender data were

missing for 1 participant; mean age = 24.82 years, $SD = 10.50$; age data were missing for 6 participants). The shoppers completed a shopping survey in exchange for a chance to win a U.S. \$20 store gift certificate by playing an instant scratch-off lottery. Shoppers were randomly assigned to clear-loss, win, and near-win conditions. The lottery card contained a 6×6 scratch-off grid; winning lottery cards contained six 8s in a row, column, or diagonal (see Fig. S2 in the Supplemental Material). The lottery either had three nonadjacent 8s (clear-loss condition), five adjacent 8s (near-win condition), or six adjacent 8s (win condition). We intended the cards to be scratched off starting at the top of the card, but 4 shoppers scratched the lottery card from the bottom rather than the top and were therefore aware that they had lost the lottery from the beginning. Data from these 4 shoppers were removed before we ran the analysis. This left us with a total sample of 164 shoppers. On exiting, shoppers exchanged their purchase receipts for small gifts and answered a second survey in which they supplied various demographic information, including gender, nationality, and age.

Results

Given that many participants made no purchases, we used a Tobit regression (Tobin, 1958), left censored at 0. We included dummy variables indicating the clear-loss and win conditions; near win was the reference condition. Controlling for age (six missing values were replaced with the rounded sample mean age of 25), which was a significant covariate, the results showed that, compared with participants in the near-win condition, those in the clear-loss condition and those in the win condition spent less money in the store (clear-loss condition: $b = -15.79$, $SE = 4.63$, $t(159) = -3.41$, $p = .001$, $CI = [-24.94, -6.64]$; win condition: $b = -10.67$, $SE = 4.47$, $t(159) = -2.38$, $p < .02$, $CI = [-19.50, -1.83]$).

General Discussion

The concept of motivation is central to understanding what drives human behaviors. Research shows that the ultimate outcome—winning or losing—is a key driver of motivation. Although winning can increase motivation, losing may decrease motivation (Reeve et al., 1985). We proposed a novel nearly-winning effect in which nearly winning, compared with clearly losing or winning, enhances motivation on unrelated tasks. We provided support for the nearly-winning effect in multiple ways. Experiment 1 showed that narrowly missing a reward in one game enhanced participants' motivation to walk faster to reach another unrelated but desirable outcome. Moreover, when anticipation of the reward was aborted early, the nearly-winning effect was attenuated. Experiment 2 demonstrated that nearly winning subsequently led participants to salivate more in

response to a highly desirable object. Experiment 3 showed that, compared with clearly losing or winning, nearly winning in one task led participants to increase their efforts to earn money in a subsequent task. Moreover, dampening the motivational state in an intervening task attenuated the nearly-winning effect. Experiment 4 showed that this effect was generalizable to real-life behaviors.

One limitation of the current research is that we aimed for 85% power instead of the more common target of 80% power. Furthermore, in two experiments, our sample sizes were based on the sample sizes of prior research using conceptually similar dependent variables. Finally, Experiments 1 and 2 assumed large effect sizes on the basis of prior research, so some of our studies could be underpowered.

One domain of research that might seem related to the nearly-winning effect is that on counterfactuals. Counterfactual thoughts can occur with greater ease when the unrealized outcome is more likely (Epstude & Roese, 2011). One could argue that nearly winning triggered more counterfactual thoughts; however, participants in our studies were not asked to generate counterfactuals—a key manipulation in prior studies examining the motivational effects of counterfactuals. Research has demonstrated that when participants are asked to generate counterfactuals that have a positive outcome (i.e., upward counterfactuals), failure on one task can enhance motivation on the same task but not on unrelated tasks (Smallman & Roese, 2009). In addition, these motivational effects of counterfactuals have been shown only for tasks on which outcome is under participants' control. In the current research, the outcome of the previous task was beyond participants' control. Moreover, we observed motivational effects of nearly winning on unrelated tasks (e.g., nearly winning on a game, followed by performance on the CARROT). Thus counterfactual theory is unlikely to explain the nearly-winning effects.

One might see a conceptual similarity between the general motivational state and approach motivation, which refers to the energization of behaviors toward desirable outcomes (Elliot, 2006). However, although most research on approach motivation links motivation to a specific reward (Winkielman, Berridge, & Wilbarger, 2005), the current results suggest that the general motivational state is not specific to a reward; rather, it is generalizable to a broad array of rewards, including some that may be unrelated to the actual cue that activated the state.

The nearly-winning findings documented here have important theoretical implications. First, this research expands the goal-gradient theory (Hull, 1932) in a new direction by showing that the enhanced motivation induced as a result of advancing toward the reward is not specific to that reward; rather, it could be generalizable to other unrelated rewards. Second, these findings are consistent with an emerging body of research in neuroscience suggesting that stimulation of the dopaminergic reward

circuitry may cause people to want more of pleasurable stimuli such as food or sex (Berridge & Kringelbach, 2008). The current research suggests a broader possibility of the existence of a general motivation, which, once induced by a variety of cues or experiences, can motivate people to exert effort for obtaining other salient rewarding stimuli.

To exclude a number of potential confounds (such as a self-affirmation explanation), we focused the current research on randomly determined outcomes. However, the nearly-winning effect should apply to skill-based tasks as well. For example, nearly winning on a skill-based task (e.g., a sales contest) could increase motivation for another desirable outcome (e.g., winning an auction). However, this is an empirical question that future research needs to examine. A deeper understanding of these issues would provide valuable insights into how and when nearly-winning experiences lead to general motivational effects.

Appendix: Replication Study

Method

In this experiment, we attempted to replicate Experiment 1's finding that nearly winning leads people to walk faster for another reward, compared with clearly losing. The sample size of this study was determined based on a power analysis using G*power (Version 3.1; Faul et al., 2007). In Experiment 1, the effect size of the difference between the near-win and clear-loss conditions was $d = 1.13$. Given that this was a replication study, we applied more stringent rules for sample-size estimation. Therefore, using the effect size from Experiment 1 ($d = 1.13$), an alpha level of .01, and power of 95%, the power analysis indicated a required sample size of 54 participants. We decided to stop the study either when 54 participants had completed the study or when as many participants as possible had completed the study, provided that this number was close to 54 (i.e., ± 5).

Sixty-six participants were recruited from the courtyard of a student union building at a U.S. university. Ten tables were set up on each side of the courtyard. We used two of the tables for our experiment, one on each end of the courtyard. During the study, three other student clubs were using tables. At our first table, participants were invited to play the phone game used in Experiment 1. Participants were randomly assigned to play and evaluate one of the two versions of the game: near win or clear loss. As in Experiment 1, participants could obtain a pen as a reward if they found eight diamonds without finding a rock. After participants played and evaluated the game, using the same scale and items as in Experiment 1, they were asked to drop their completed surveys at the second

table on the other end of the courtyard. They were further informed that at the second table, they could collect a chocolate bar. As in Experiment 1, the main dependent variable was the time it took participants to walk directly from the first to the second table, which was surreptitiously recorded. Eight participants got stopped at other clubs' tables on the way to our second table or did not reach the second table; thus the data for these participants could not be collected. An additional participant appears to have become lost; her walking time (160 s) was 16 standard deviations above the participants' average score ($M = 45.42$ s, $SD = 7.08$) and was not included in the analyses. Therefore, the final sample included 57 participants (25 men and 32 women; mean age = 20.53, $SD = 3.66$). As in Experiment 1, we predicted that participants in the near-win condition would walk faster to get the chocolate than participants in the clear-loss condition.

Results

A one-way ANOVA revealed a significant difference in walking time between the two conditions, $F(1, 55) = 25.42$, $p < .0001$, $\eta_p^2 = .316$, $d = 1.33$. Participants in the near-win condition ($M = 41.12$ s, $SD = 6.10$) walked faster to get the chocolate than those in the clear-loss condition ($M = 49.03$ s, $SD = 5.74$). The estimated difference in walking speed between the near-win and clear-loss conditions was -7.92 s (95% CI = $[-11.06, -4.77]$). This study successfully replicated the near-win findings from Experiment 1.

Author Contributions

M. Wadhwa developed the research idea. The studies were primarily designed by M. Wadhwa, with input from J. C. Kim. The studies were programmed by J. C. Kim, with help from a coder. Data collection was performed by J. C. Kim. Data were primarily analyzed by J. C. Kim under the supervision of M. Wadhwa. M. Wadhwa drafted the manuscript with input from J. C. Kim. Both authors approved the final version of the manuscript for submission.

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Declaration of Conflicting Interests

The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

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Supplemental Material

Additional supporting information can be found at <http://pss.sagepub.com/content/by/supplemental-data>

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