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ORIGINAL RESEARCH

Decision Reversibility and Satisfaction: The Mediating Role of Counterfactual Thinking and Anticipated Regret

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Purpose: Extensive research has shown that reversible decisions yield lower post-decision satisfaction than irreversible decisions. However, to date, little is known about how decision reversibility affects post-decision satisfaction. Based on regret theory, this study aimed to examine the mediating role of counterfactual thinking and anticipated regret in the association between decision reversibility and satisfaction.

Methods: In this study (130 participants), participants were randomly assigned to two personnel decision situations with reversible and irreversible decision outcomes, and all participants completed questionnaires during the process of completing the decision task. The questionnaires used included the Counterfactual Thinking for Negative Events Scale, Anticipated Regret Scale, and satisfaction questionnaire. Finally, the data were statistically analyzed using the base package in R and PROCESS 3.5.

Results: The results show that (1) Compared to irreversible decisions, reversible decisions have a significant negative impact on satisfaction. (2) Counterfactual thinking plays a mediating role between decision reversibility and satisfaction. (3) Compared with irreversible decisions, reversible decisions further lowered the level of post-decision satisfaction through the chain mediating effects of counterfactual thinking and anticipated regret.

Conclusion: People's lowered levels of post-decision satisfaction in the reversible decision condition relate to increased levels of counterfactual thinking and anticipated regret. In addition, counterfactual thinking can play a mediating role alone, indicating that this variable may be critical in understanding the mechanisms by which decision reversibility affects satisfaction. This knowledge may be used to help people optimize their decision-making behavior.

Keywords: decision reversibility, satisfaction, regret theory, counterfactual thinking, anticipated regret

Introduction

Imagine you go shopping at the mall and there are two identical goods for you to select; would you choose the one with an additional returnable policy attached (reversible decision) or the non-returnable one (non-reversible decision)? Generally, one's intuition will lead them toward an immediate preference for reversibility, sometimes even a willingness to pay a premium for this privilege.[1] However, these studies showed results that challenge this general intuition: reversible decisions actually yielded lower levels of post-decision satisfaction and higher levels of regret than irreversible decisions.[1–3] This is considered to be a general understanding in the field of decision making. In this context, one questions emerge: how do reversible decisions lead to a lower level of post-decision satisfaction?

To probe this effect, we propose a chain mediation theory model with counterfactual thinking and anticipated regret as mediating variables. Regret theory provides a theoretical framework for the reversible decision effect from the perspective of cognitive and emotional chain reactions.[4] According to regret theory, to avoid regret, people invariably tend to compare their chosen option with the rejected option after making their initial choice under reversible conditions (before the final choice) and imagine whether a different choice would have been better.[5] Such cognitive comparisons are

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also known as counterfactual thinking,[5,6] and through these comparisons people develop feelings of regret based on expectations, that is, anticipated regret.[7,8] Furthermore, regret theory indicates that the course from counterfactual thinking to anticipated regret can make objectively better outcomes look worse, ultimately impairing people's satisfaction with the decision outcome.[9,10] Under the irreversibility condition (no opportunity to choose again), combined with information search theory,[11] we suggest that people will tend to turn off or inhibit information that is relevant to the decision or search for information that is consistent with the decision outcome, to support the decision made in order to avoid regret.[6] Compared to reversible decisions, this may significantly reduce counterfactual thinking and anticipated regret after the decision, thus increasing satisfaction with the decision to some extent.

Therefore, we propose that counterfactual thinking and anticipated regret are chain mediators in the relationship between decision reversibility and satisfaction. The current research provides an explanation for the negative effects of reversible decisions, while it will help people to better recognize and understand why the reversible privileges, they favor in their daily lives lead to a lower satisfaction with the currently chosen option. This reminds people that reversible decisions should be viewed more rationally with the aim of optimizing individual decision-making behavior.

Theoretical Background and Hypothesis Development

Decision Reversibility and Satisfaction

People tend to favor reversible decisions because it provides them with an additional authority to modify their initial choice, and this additional feature makes them believe that such reversibility provides safety if their choice goes wrong; therefore, people believe that reversible decisions will bring a good outcome.[1] However, empirical research has demonstrated that reversible decisions actually yield lower levels of post-choice satisfaction compared with irreversible decisions,[2,3,10,12] and that only few people modify their initial choices under reversible conditions.[2,3,6] These results regarding reversible decisions extend to a wide array of scenarios; for example, a study showed that reversible decisions reduce online daters' satisfaction with their potential partners.[13]

Gilbert and Ebert[3] were the first to experimentally investigate decision reversibility and satisfaction; they asked participants to rank nine posters according to their liking, and then told the participants that they could remove any one of the two posters they had ranked 3 and 4. For half of the participants, this decision was reversible; for the other half, it was not, and they had only one chance to choose without the possibility of changing afterward. The researchers found that participants under the irreversible condition liked their chosen poster more than those under the reversible condition. Researchers believe this to be an affective forecasting error, where people under reversible decision conditions become excessively optimistic in their predictions of how they will feel, owing to the reversibility of the situation. This affective forecasting error may be related to reversible decision situations evoking a systematic disregard for the human psychological immune system, causing people to behave in ways that do not optimize their well-being.[3] In irreversible decisions, the psychological immune system may be triggered, enabling people to try and further optimize their feelings about the outcome after understanding that it is unchangeable, a process that is the driving force behind the generation of satisfaction.[3,14]

The cognitive dissonance theory can better describe the relationship between decision reversibility and satisfaction.[2] This theory suggests that after people make a tough decision, they try to increase the perceived attractiveness of the chosen option and decrease the attractiveness of the rejected option.[15,16] Scholars who empirically tested this theory eventually confirmed this suspicion, finding that irreversible decisions increased the positive aspects of the chosen option and the negative aspects of the rejected option.[2] Additionally, a study indicated that, after people make irreversible decisions, they increase their satisfaction levels by distorting facts[17] and memory attributions.[18] Meanwhile, reversible decision-making has been shown to inhibit the psychological immune system,[3] and decrease working memory capacity as it causes people to continue thinking and selecting content related to the topic of decision, even after it is made. This process may develop decision-related dissatisfaction and regret.[6]

Furthermore, from a motivational perspective, reversible decisions activate one's prevention focus (ie, driving one to focus on the negative aspects of decision outcomes) and irreversible decisions activate one's facilitation focus (ie, drawing one to focus on the positive aspects of decision outcomes).[10,12] Based on these theories on the firm link between reversible decisions, irreversible decisions, and satisfaction levels, we propose the following hypothesis:

Hypothesis 1. Reversible decisions will produce lower satisfaction levels compared with irreversible decisions.

Mediating Role of Counterfactual Thinking

Compared with irreversible decisions, reversible decisions give people more freedom of choice, which may increase counterfactual thinking.[6,19] Counterfactual thinking refers to when individuals deny events that have occurred or situations that cannot be changed, thereby constructing an alternative hypothesis;[20,21] it is typically expressed through thoughts phrased as "what could have happened".[22] People spontaneously engage in upward counterfactual thinking after reversible decisions (eg, "would I have had a better outcome if I had chosen a different option"), and the amount of counterfactual thinking in such cases is significantly higher than that for irreversible decisions.[19]

Upward counterfactual thinking has been shown to lead individuals to repeatedly evaluate the advantages and disadvantages of different options, occupying a significant amount of their cognitive resources.[23,24] Bullens, van Harreveld, and Förster[6] found that participants in the reversible condition had lower working memory capacity compared to those in the irreversible condition, which also suggests that the cognitive resources of individuals in the reversible condition are heavily occupied. This occupation can lead to dissatisfaction with actual decisions.[6] In addition, the excessive attention individuals pay to the advantages of the rejected option and the disadvantages of the chosen option during counterfactual thinking can also influence their evaluation of the decision outcome.[20,25] These reasonings suggest that reversible decisions induce more counterfactual thinking than irreversible decisions, and that an increase in counterfactual thinking has a negative impact on satisfaction. Thus, we suggest the following hypothesis:

Hypothesis 2. Counterfactual thinking mediates the relationship between decision reversibility and satisfaction.

The Chain Mediating Role of Counterfactual Thinking and Anticipated Regret

Extant studies[21,26–28] have established a positive relationship between counterfactual thinking and anticipated regret; an increase in counterfactual thinking could predict a subsequent increase in regret.[29] Regret is conceptualized as a negative, cognitive-based emotion that decision makers experience when they contemplate that they might be in a better situation now if they had made a different decision or action at that time.[30,31] Regret usually occurs during the retrospective process of the decision made, but anticipated regret occurs prior to the decision, namely when the individual imagines that he may feel regret when making a particular decision.[27,32–36] According to regret theory, individuals evaluate different options through counterfactual comparisons prior to the final decision in order to avoid severe regret, thereby provoking anticipated regret.[5,35] People make decisions based on the magnitude of expected regret for each option, rather than on the least risky option.[9] When all the options are equally attractive (in terms of expected utility), people tend to engage in more radical counterfactual comparisons, which could induce stronger feelings of anticipated regret.[36]

Moreover, researchers have argued that decision reversibility is only meaningful when explored in the context of uncertainty decision making because people fear uncertainty and therefore desire the right to reverse it.[1,6] The "minimax regret rule" in uncertainty decision making emphasizes that individuals minimize the expected maximum regret in the decision process and adopt regret-avoiding decision behavior.[10]

Therefore, we argue that for individuals in the irreversible condition, their anticipated regret level decreases after the decision making. In contrast, the individuals in the reversible condition maintain their anticipated regret at a certain level because they are in the decision-making state until they exert their final reversal right. People make decisions according to the magnitude of expected regret for each option rather than based on the least risky option.[8,9] Thus, we contend that more counterfactual thinking induces more anticipated regret. Drawing from the regret theory, we argue that decision reversibility predicts the counterfactual thinking-anticipated regret link. Compared to the irreversible condition, individuals in the reversible condition have a one-time reversal privilege, which enables their search for decision-related information to remain open after the initial decision[6] and induces more counterfactual thinking.[19] Therefore, integrating our previous discussion of the counterfactual thinking-anticipated regret link, we argue that individuals in the reversible condition may tend to develop more counterfactual thinking and anticipated regret than individuals in the irreversible condition.

We contend that counterfactual thinking and anticipated regret predict post-decisional satisfaction. People with a high level of counterfactual thinking, prior to decision-making, tend to perceive that the current option may not provide the desired utility.[37] According to the expectancy-disconfirmation model of regret theory,[29] the gap between the perceived possible decision outcome and the expected outcome induces an emotional response that influences satisfaction with the decision outcome.[38] Thus, we argue that compared to the irreversible condition, extensive counterfactual thinking comparisons lead individuals in the reversible condition to perceive that the current option may turn out to be bad even if it is an attractive option for them. This exaggerates the gap between the individual's perceived utility of the current option and the expected utility, which could induce anticipated regret and thus predict lower satisfaction. Thus, we propose the following hypothesis:

Hypothesis 3. Counterfactual thinking and anticipated regret play a chain mediating role between decision reversibility and satisfaction.

Methods

Participants

In total, 132 students (68 females) were randomly selected from the city of Shanghai to participate in this study. They were all graduate level, studying human resource management. Two subjects were excluded because they did not answer the questions asked during the manipulation check. Hence, data from 130 participants (Mean age = 22.14 years, *SD* = 0.95 years; 68 females) were analyzed, with 64 participants (35 females) in the reversible decision condition and 66 participants (33 females) in the irreversible decision condition. All participants provided written informed consent prior to their participation.

Measures

Material

To simulate a common situation in everyday life where reversible decisions occur—namely the personnel decision situation[2]—we adapted the classical paradigm presented in reversible decision research.[3,12]

First, we randomly selected seven real information technology manager resumes that were used for applying to "Qian Cheng Wu You" and "BOSS zhi pin", which are large online recruitment platforms in China. To prevent casual similarity from affecting study participants' attitude orientation,[39] we replaced the names in the resumes with numbers and removed birthplace information as well. All modified resumes were comprised of 2000–2050 words, three full pages, and had the same format, font, and layout style. Each resume included five parts: basic information, self-evaluation, job search intention, education experience, and work experience.

Second, we invited 50 raters (20 current employees in human relations manager positions and 30 undergraduate human relations students; average age 22.3 years, 24 females) to rate the popularity of the seven resumes on a 7-point scale. We selected the three resumes that showed medium popularity (ie, ranked 3, 4, and 5), for the current study experiment and numbered them in order: candidate 1 (M = 5.59, SD = 0.87), candidate 2 (M = 5.47, SD = 0.89), and candidate 3 (M = 5.22, SD = 0.96).

Counterfactual Thinking

Counterfactual thinking was assessed using the 3-item Self-Referent Upward Counterfactual Thinking subscale of the Counterfactual Thinking for Negative Events Scale.[40] We chose this subscale because it is a self-selection measure and is appropriate for use in the context of the current study. The Self-Related Upward Counterfactual Thinking subscale evaluates participants' propensity to imagine better alternatives to real events that could have been caused by their actions. An example item is: "I think about how much better things would have been if I had acted differently." We modified the subscale to make it more suitable for the hiring scenario (α = 0.78). An example item is: "I think about how much better things would have been if I had picked someone else initially." Responses to the three items were given on a 9-point scale, ranging from 1 (never) to 9 (very often). We computed an average score using the 3-item scores, and higher scores indicate higher levels of counterfactual thinking.[41]

Anticipated Regret

Anticipated regret was measured using two items (α = 0.72), which were extracted from Tsiros's study.[42] An example item is: "If I do not change (change) the original decision, I would regret it later." Responses to the two items were given on a 9-point scale, ranging from 1 (strongly disagree) to 9 (strongly agree). A prior study has confirmed the validity of the scale for Chinese participants.[43]

Decision Satisfaction

Decision satisfaction was measured using a scale present in previous studies;[3,12,44] however, we changed the scenario of the items in the scale. The final scale we used comprised two items (α = 0.88). The first question was, "How satisfied are you with your choice?" It was answered on a 9-point scale, ranging from 1 (very dissatisfied) to 9 (very satisfied). The second question was, "How confident are you that the selected candidate is competent for your position?" It was answered on a 9-point scale, ranging from 1 (no confidence at all) to 9 (very confident).

Procedure

All participants were randomly assigned to reversible or irreversible conditions. Participants in the irreversible decision condition were told that they had only one chance to choose and that their decision could not be modified; those in the reversible decision condition were told that their decision was only preliminary, that they had the opportunity to modify their decision before the end of the experiment, and that they had unlimited time to think about it.

Subsequently, the participants were told that this was an experiment related to competency assessment, which required them to accomplish a critical hiring decision for a fictional company in the capacity of a personnel executive. A mediator provided the participants information about the company's current operations, temporarily vacant positions, and application requirements; then, the participants were told to select, based on their opinion, the best candidate among the three presented candidates. At this time, the three resumes were randomly placed in front of the participants.

We followed Bullens' approach[2] and conducted a manipulation check on whether a standardized manipulation of the independent variables (two experimental conditions: reversible and irreversible) had been implemented before participants made a formal decision. Participants were asked to point out the degree of reversibility of the task, ranging from not at all (1) to very (9) reversible. After making the decision, they were asked to indicate their satisfaction with this decision on a 9-point Likert scale. All participants completed a rapid scratch elimination procedure within a period of approximately 8 mins, which was not relevant to the present study. Afterward, the participants were asked to write down the reasons for choosing a particular candidate on a blank sheet of paper in as much detail as possible, and this process lasted about 10 minutes.

Finally, all the participants were asked to answer items on the scales used to measure counterfactual thinking and anticipated regret. Subsequently, after confirming whether the participants in the reversible condition had changed their chosen candidates, they were asked to rate their satisfaction with the chosen candidate again. At the end of the experiment, we thanked all the participants sincerely and provided a cash reward of 50 RMB to each of them.

Data Analysis

Prior to hypothesis testing, we performed a series of CFAs to examine the discriminant validity of counterfactual thinking, anticipated regret, and satisfaction. When analyzing satisfaction changes, we performed regular analysis of variance (ANOVA) analyses using the base package in R.[45] When testing the mediation effects of counterfactual thinking and anticipated regret, we first coded decision reversibility as a dummy variable (reversible condition = 0; irreversible condition = 1) and then performed a test for mediation effects using PROCESS 3.5 in SPSS 23.0 (Model 6, bootstrap 5000 times).[46]

Results

Manipulation Check

To define the sample size for this study, we conducted independent sample *t*-tests using G*Power 3.1.[47] Considering two groups, an effect size (f) of 0.4 and a significance level of 0.05, the power value of a sample size of 130 was 0.92; this number exceeded the basic level of 0.80, hence demonstrating statistical power.

Our results for the manipulation check revealed that those in the reversible decision condition considered the decision to be more reversible ($M = 7.97$, $SD = 0.75$) than those in the irreversible decision condition ($M = 1.32$, $SD = 0.47$), $t\,(128) = 61.26$, $p < 0.01$, $d = 0.98$. Only three participants in the reversible condition changed their preliminary decisions.

Satisfaction Changes

Participants' satisfaction scores were submitted to a 2 (condition: reversible vs irreversible) × 2 (time: pre-decision score vs post-decision score) repeated measurement ANOVA. This analysis revealed the expected interaction between the variables, $F\,(1, 128) = 117.06$, $p < 0.01$, $\eta^2 = 0.49$. As shown in Figure 1, the satisfaction of participants in the reversible condition decreased significantly after the decision [$t\,(63) = 6.68$, $p < 0.01$, $d = 1.68$], while the satisfaction of those in the irreversible condition increased significantly after the decision [$t\,(65) = 8.63$, $p < 0.01$, $d = 2.14$]. This suggests that reversible decisions decrease individual satisfaction with the decision; hence, Hypothesis 1 was confirmed.

The Mediating Role of Counterfactual Thinking and Anticipated Regret

The CFA results showed that the three-factor model (counterfactual thinking, anticipated regret, and satisfaction) fit the data well: $\chi^2/\mathrm{df} = 0.69$, N=130, $p < 0.001$, CFI = 0.99, TLI = 0.99, SRMR = 0.03, and RMSEA = 0.04. This model also fit the data significantly better than all other alternative models (For example, the three two-factor model), indicating good discriminant validity of the three variables.

Table 1 presents the descriptive statistics and correlations of all the variables. The results showed that decision reversibility had a negative association with both counterfactual thinking ($r = –0.39$, $p < 0.01$) and anticipated regret ($r = –0.37$, $p < 0.01$) and a positive association with satisfaction ($r = 0.70$, $p < 0.01$). We transformed decision reversibility into a dummy variable (1 = reversible, 0 = irreversible), and our testing validated the continuous mediating role of counterfactual thinking and anticipated regret. The results of direct effects and indirect effects are shown in Table 2; the overall regression equation was significant [$R^2 = 0.50$, $F\,(1, 128) = 127.98$, $p < 0.01$]. The mediating effects of the counterfactual thinking (CI = [0.05, 0.55]) and counterfactual thinking and anticipated regret (CI = [0.04, 0.30]) were confirmed, thus proving Hypotheses 2 and 3. The 95% CI associated with indirect effect based on the bootstrap simulation method did not cover zero. The results of the standardized path coefficients are shown in Figure 2.

Discussion

The current study aimed to provides an explanation for the association between decision reversibility and satisfaction. Based on regret theory, the present research provides evidence to support the notion that reversible and irreversible decisions evoke changes in satisfaction through both counterfactual thinking and anticipatory regret. Specifically, the

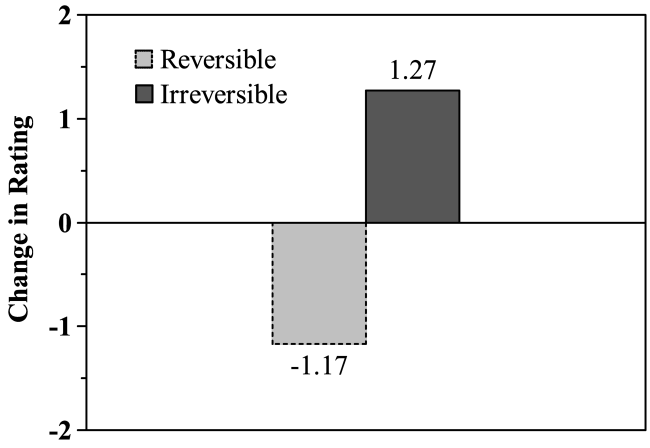

Figure 1 Satisfaction score changes by decision condition. In the irreversible condition, participants subjectively optimized their results by increasing their satisfaction of the decision, M = 1.27, SD = 1.20, whereas in the reversible condition, experiencers did not show this increase, M = – 1.17, SD = 1.27.

Table 1 Means, Standard Deviations, and Correlations of Study Variable

Variable	*M*	*SD*	1	2	3	4	5	
1. Age	22.14	0.95						
2. Gender[a]	1.47	0.5	0.04					
3. Decision reversibility[b]	1.51	0.5	–0.00	0.05	–0.39**	(0.78)		
4. Counterfactual thinking	3.76	1.24	–0.04	0.11	–0.37**	0.64**		
5. Anticipated regret	3.50	1.38	0.12	0.09	0.70**	–0.54**	(0.72)	
6. Satisfaction	0.10	1.77	–0.05	–0.01	–0.39**	(0.78)	–0.53**	(0.88)

Notes: *N* = 130. **$p < 0.01$. Scale reliabilities (Cronbach alphas) in parentheses. [a]Gender: Male = 0, Female = 1. [b]Decision reversibility: reversible condition = 0, irreversible condition = 1.

Table 2 Effects in the Mediation Model

Direct Effects		***Beta***	***SE***	**LLCI**	**ULCI**
	DR → Counterfactual thinking	–0.87***	0.20	–1.36	–0.56
	DR → Anticipated regret	–0.54	0.20	–0.79	0.01
	Counterfactual thinking → Anticipated regret	0.84***	0.08	0.49	0.81
	Counterfactual thinking → Satisfaction	–0.34**	0.10	–0.48	–0.07
	Anticipated regret → Satisfaction	–0.29**	0.09	–0.43	–0.06
	DR → Satisfaction	0.93***	0.21	0.75	1.14
Indirect effects		**Boot Effect**	**Boot *SE***	**Boot LLCI**	**Boot ULCI**
	DR → Counterfactual thinking → Satisfaction	0.35	0.19	0.08	0.88
	DR → Anticipated regret → Satisfaction	0.16	0.12	–0.01	0.46
	DR → Counterfactual thinking → Anticipated regret → Satisfaction	0.21	0.10	0.07	0.56

Notes: *N* = 130. **$p < 0.01$, ***$p < 0.001$. DR = Decision reversibility. Beta = standardized coefficient; LLCI = 95% lower limit confidence interval; ULCI = 95% upper limit confidence interval. Boot = the statistics of indirect effects are the result of bootstrap method.

results showed that one of the reasons that reversible decisions produce lower satisfaction is because such decisions increase individual counterfactual thinking and anticipated regret.

Theoretical Implications

This study makes two notable contributions to the literature on decision reversibility. First, our findings provide an explanation for the counterintuitive understanding that reversible decisions evoke negative effects. Based on regret

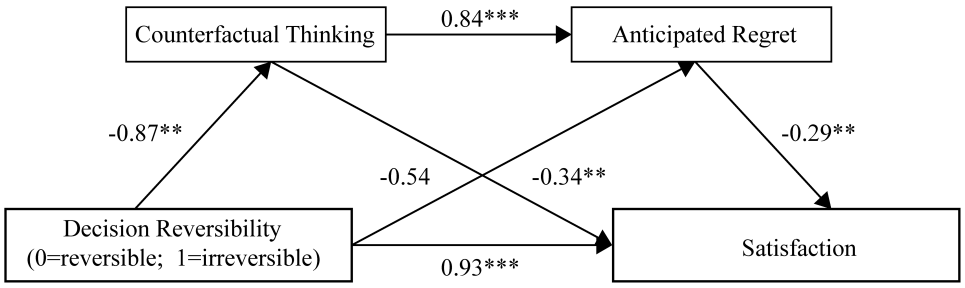

Figure 2 A scheme of the model tested.
Note: **$p < 0.01$, ***$p < 0.001$. The figure reports the estimates of the standardized path coefficients for the structural paths.

theory, we found that counterfactual thinking and anticipated regret are intermediate pathways by which decision reversibility affects satisfaction. Hence, counterfactual processes that primarily involve cognitive activity and induced emotions can explain how reversible decision-making leads to a decrease in satisfaction.

In fact, Hafner, White, and Handley[48] found that reversible decisions led to more counterfactual thinking and lower satisfaction in individuals under low cognitive load conditions. Drawing from regret theory and in conjunction with existing research,[5,19,44,48] we argued that regret is a counterfactual emotion based on prior counterfactual experiences, denoting that counterfactual thinking is very closely related to negative emotions. Based on these descriptions, we believe that our study concurs with the findings of Hafner, White, and Handley,[19] and adds the mediating variable of anticipated regret, which we believe is very closely linked to counterfactual thinking. These delineations further integrate the chain of evidence on the mediating role of counterfactual thinking and anticipated regret, which in turn provides us with a more comprehensive understanding of the relationship between reversible decisions and satisfaction.

Concurring with prior research,[48,49] we found that anticipated regret cannot play a mediating role alone; instead, it provides a partial mediation that occurs after the induction of counterfactual thinking, subsequently causing a decrease in individual satisfaction and well-being. In accordance with the present results, previous studies have demonstrated that anticipated regret typically occurs along with counterfactual thinking.[26,50] At the same time, our results showed that counterfactual thinking can play a mediating role alone, indicating that this variable may be critical in understanding the mechanisms by which decision reversibility affects satisfaction. This result supports the findings of Bullens, van Harreveld, and Förster,[6] who suggested that reversible conditions put pressure on individuals' cognitive resources, resulting in a lower working memory capacity. We suggest that this stress on cognitive resources is likely to be the result of individuals engaging in a great deal of counterfactual thinking. The combination of counterfactual thinking at the cognitive level and anticipated regret at the emotional level leads to a decrease in individual satisfaction with the decision.

Practical Implications

First, the present research provides a systematic explanation for the negative effects of reversible decisions, reminding people to be alert to the consequences of reversible decisions and allowing them to make more rational choices. Specifically, the potential negative effects of this type of a decision create more counterfactual thinking and anticipated regret, both of which may influence our ultimate experience of the decision-related outcome.

Second, our findings show that people may be paying additional costs for a "power" that is rarely used; specifically, most study participants who were engaged in reversible conditions did not modify their initial choices. This is consistent with prior literature, with researchers suggesting that this may be due to an "endowment effect",[51] which leads people to have a sense of ownership toward the decision they made the first time, denoting that the replacement of the decision would lead to a loss that people would like to avoid when possible.[52]

Third, our findings remind us to pay attention to an important human capacity that has often been neglected: the psychological immune system. Once a decision becomes immutable, we can easily change how we feel about it with the action of the psychological immune system, which can reshape our perception of the outcome.[3]

Limitations and Future Directions

This research has several limitations that can help further studies. Initially, we tested the mechanisms of counterfactual thinking and anticipated regret in the association between decision reversibility and satisfaction. However, there may be other mechanisms affecting this relationship. For example, it has been demonstrated that people who choose from a larger choice set feel more responsible for reaching positive decision outcomes than those who choose from a smaller choice set.[53]

Moreover, Bullens and Harreveld[1] argue that the degree of satisfaction with, and regret toward, decisions may depend on the degree of responsibility one feels toward achieving a positive decision outcome; people who felt more responsible for the decision outcome were more likely to regret the decision than those who felt less responsible for the decision outcome.[54] Thus, the association between decision reversibility and satisfaction may be stronger among those who are

held more responsible for the positive outcome of a decision compared with those who are less responsible for it. Future research could test this potential mechanism.

Finally, some people, despite being ready to buy a product, seem to be able to make a decision only after having learned all the advantages and disadvantages of different brands of that product. This type of behavior is typical of individuals with low need for cognitive closure (NFC), whose prominent behavior characteristics relate to carrying out extensive information searches before making decisions and preferring to hold off on their decision-making. Such prominent behaviors denote that these individuals' decisions may be less susceptible to reversibility.[55] As a result, future research could look into how this NFC trait moderates the link between reversible contexts and satisfaction when triggered by reversible contexts.

Conclusion

Based on regret theory, this paper focuses on the influence mechanism that decision reversibility and satisfaction levels are associated with. The results showed that: counterfactual thinking and anticipated regret act as chain mediators between decision reversibility and satisfaction; reversible decisions were associated with higher counterfactual thinking and anticipated regret, while anticipated regret was associated with lower decision satisfaction, and vice versa.

Ethics Statement

This study was conducted in accordance with the Declaration of Helsinki. This study was approved by the Ethics Committee of Shanghai Normal University. After each participant was fully informed of the purpose and plan of the present study before the beginning of the research, their signature on the informed consent form was considered as consent to participate in the study. The participants' private information was completely anonymous, and all participants' information was protected.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

Disclosure

The authors declare no conflicts of interest in this work.

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