Multidimensional Perfectionism and Counterfactual Thinking:

Some Think Upward, Others Downward

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Abstract

Perfectionism is a personality disposition that can be expected to explain individual differences in counterfactual thinking. Yet, research on perfectionism and counterfactual thinking is very limited, and findings are mixed. The present study ($N = 175$ university students) investigated the relationships between perfectionism and counterfactual thinking after imagining a negative outcome (i.e., receiving a bad grade). Self-oriented perfectionism showed positive relationships with upward counterfactuals (imagining better outcomes) and negative relationships with downward counterfactuals (imagining worse outcomes). In contrast, socially prescribed perfectionism showed positive relationships with downward counterfactuals. The findings suggest that counterfactual thinking in self-oriented perfectionism aims at self-improvement and motivates for future better outcomes—at the cost of increased negative affect—whereas counterfactual thinking in socially prescribed perfectionism aims at mood repair.

Keywords: perfectionism; counterfactual thinking; failure; self-improvement; mood repair

1. Introduction

Counterfactual thinking is an important cognitive activity which involves imagining different actions and circumstances producing different outcomes ("what might have been, if…") to those that actually happened (Byrne, 2016). Counterfactual thinking may follow all outcomes, but people tend to generate more counterfactuals following negative outcomes than positive outcomes (Roese, 1997). In counterfactual thinking, it is useful to differentiate two directions: Upward counterfactuals imagine a more positive outcome, and downward counterfactuals a more negative outcome. According to the functional theory of counterfactual thinking (Roese & Epstude, in press), upward and downward counterfactuals following negative outcomes have different effects and functions. Upward counterfactuals enhance negative affect, but also enhance motivation for self-improvement. Thinking about what might have produced a better outcome makes people feel worse, but also helps them think about how to avoid the same negative outcome in the future. In contrast, downward counterfactuals decrease negative affect (mood repair), but lack the motivation and preparatory function of upward counterfactuals. Thinking about how things could have been even worse makes people feel better, but does not help them avoid the same negative outcome in the future.

There are, however, individual differences in counterfactual thinking, and people's personality can explain why some people are more likely to engage in counterfactual thinking than others (Kasimatis & Wells, 1995). One personality disposition that should explain individual differences in counterfactual thinking is perfectionism. The reason is that perfectionism is characterized by exceedingly high standards of performance accompanied by overly critical self- and social evaluations (Stoeber, 2018). Perfectionists expect everything to be perfect. Consequently, negative outcomes should trigger counterfactual thinking to a greater extent in perfectionists than nonperfectionists.

There are, however, two problems. The first is that perfectionism is best conceptualized as a multidimensional disposition (Frost, Marten, Lahart, & Rosenblate, 1990; Hewitt & Flett, 1991), and different dimensions of perfectionism have shown different, sometimes opposing associations (Stoeber, 2018). The second problem is that research on perfectionism and counterfactual thinking is very limited.

To our knowledge, only three studies have investigated multidimensional perfectionism and counterfactual thinking, and findings are mixed. The first two studies (Sirois, Monforton, & Simpson, 2010) asked university students to write about a recent assignment/exam in which they did not perform as well as expected, and afterwards generate upward and downward counterfactuals. A counterfactual index was created by calculating the difference between the number of upward and downward counterfactuals with higher values indicating more upward than downward counterfactuals. Multidimensional perfectionism was measured with the revised Almost Perfect Scale (APS-R; Slaney, Rice, Mobley, Trippi, & Ashby, 2001) differentiating high standards and discrepancy. Whereas high standards showed no significant correlations with the counterfactual index, discrepancy showed significant positive correlations across both studies. Because discrepancy captures negative feelings and disappointment from personal performances that are below expectations, the findings suggest that failing to meet one's perfectionistic expectations triggers more upward than downward counterfactuals.

The third study (Monforton, Vickers, & Antony, 2012) presented university students with a scenario in which a class presentation did not go well. Afterwards students were asked to generate upward and downward counterfactuals, and the same counterfactual index as in Sirois et al. (2010) was created. Multidimensional perfectionism was measured with the Frost Multidimensional Perfectionism Scale (Frost et al., 1990) differentiating personal standards, concern over mistakes, doubts about actions, parental expectations, parental criticism, and

organization. Unfortunately, the study did not examine the correlations of the individual dimensions, but computed an overall perfectionism score (aggregating all dimensions) which showed no significant correlation with the counterfactual index.

The three studies have a number of limitations. Sirois et al. (2010) used the APS-R which has been criticized because the high standards subscale contains no items making reference to "perfection." Consequently, APS-R high standards may not capture *perfectionistic* expectations (Blasberg, Hewitt, Flett, Sherry, & Chen, 2016), which could explain why the counterfactual index showed positive correlations only with discrepancy, but not with high standards. Furthermore, the APS-R exclusively focuses on self aspects of perfectionism, ignoring social aspects (cf. Hewitt & Flett, 1991). Monforton et al. (2012) only examined overall perfectionism and consequently may have missed significant correlations of individual perfectionism dimensions with the counterfactual index. Finally, and perhaps most importantly, the counterfactual index used in all three studies combined upward and downward counterfactuals and therefore did not allow to examine the two counterfactual directions separately.

Against this background, the aim of our study was to further investigate the relationships of perfectionism and counterfactual thinking using a measure of multidimensional perfectionism differentiating self and social aspects: self-oriented, other-oriented, and socially prescribed perfectionism (Hewitt & Flett, 2004). Self-oriented perfectionism reflects beliefs that striving for perfection and being perfect are important. Self-oriented perfectionists expect to be perfect. In contrast, other-oriented perfectionism reflects beliefs that it is important for others to strive for perfection and be perfect. Other-oriented perfectionists expect others to be perfect. Finally, socially prescribed perfectionism reflects beliefs that striving for perfection and being perfect are important to others. Socially prescribed perfectionists believe that others expect them to be perfect (Hewitt & Flett, 1991). Furthermore, our study used a measure of

counterfactual thinking separating upward and downward counterfactuals (Rye, Cahoon, Ali, & Daftary, 2008). Because of the previous studies' limitations and mixed findings and because no previous study on counterfactual thinking differentiated self and social aspects of perfectionism and separated upward and downward counterfactuals, we did not have any specific expectations (except that perfectionism explains variance in counterfactual thinking) and the study was largely exploratory.

2. Method

2.1. Participants

A sample of 175 students (32 male, 142 female, 1 transgender) at the [name of university] was recruited via the School of Psychology's Research Participation Scheme. Students (mean age 19.9 years, $SD = 2.9$ years) volunteered to participate for extra course credit and completed all measures online using the School's Qualtrics® platform.

2.2. Procedure

Participants first completed the perfectionism measure (see 2.3.1) and then were randomly assigned to read either Scenario 1 ($n = 87$) or Scenario 2 ($n = 88$). Scenario 1 was the academic failure scenario from Roese and Olson (1993, p. 200) except that we used "Sam" instead of "Pat" (in the UK, Sam is equally used for males and females) and the grade the students received was 52 instead of a "D."[1] Scenario 2 was the same as Scenario 1 except that who did what—or failed to do what—was reversed (see Supplementary Material A), so our design counterbalanced the specific roles that the participant and Sam played in the failure. After reading the scenario, participants completed the counterfactual thinking measure (see

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[1]At [name of university], students' work is marked on a scale from 0-100, and 52 represents a mark that is significantly below average.

2.3.2).

2.3. Measures

2.3.1. Perfectionism

To measure perfectionism, we used the Multidimensional Perfectionism Scale (MPS; Hewitt & Flett, 2004) capturing, with 15 items each, self-oriented perfectionism (e.g., "I demand nothing less than perfection of myself"), other-oriented perfectionism ("If I ask someone to do something, I expect it to be done flawlessly"), and socially prescribed perfectionism ("People expect nothing less than perfection from me"). Items were presented with the MPS's standard instruction ("Listed below are a number of statements concerning personal characteristics and traits…"), and participants responded on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The MPS is a widely-used measure of multidimensional perfectionism that has demonstrated reliability and validity in numerous studies (e.g., Hewitt & Flett, 1991, 2004).

2.3.2. Counterfactual thinking

To measure counterfactual thinking in response to the scenario, we adapted 12 items from the Counterfactual Thinking for Negative Events Scale (CTNES; Rye et al., 2008) capturing downward and upward counterfactuals. Following Rye et al., we created items capturing nonreferential counterfactuals (what could have been), self-referential counterfactuals (what could have been if I had acted differently), and other-referential counterfactuals (what could have been if Sam had acted differently; see Supplementary Material B for all items). Participants were instructed that the items related to the scenario they just read, and responded on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The CTNES is a measure of counterfactual thinking that has demonstrated reliability and validity in previous studies (e.g., Barnett, & Martinez, 2015; Rye et al., 2008).

2.4. Preliminary analyses

An exploratory factor analysis of the 12 counterfactual thinking items (maximum likelihood extraction, parallel analysis, oblique rotation; Preacher & MacCallum, 2003) found three eigenvalues > 1 (4.30, 3.35, 1.04), but parallel analysis retained only the first two factors (explaining 63.7% of variance in the items) that, once rotated, clearly separated upward and downward counterfactuals (see Supplementary Material B). Consequently, the six upward items were combined to an upward counterfactuals score, and the six downward items to a downward counterfactuals score. As with the MPS, all scores were computed by averaging across items (item mean scores) and showed satisfactory reliability (Cronbach's alphas > .70; see Table 1).

3. Results

First, we examined the bivariate correlations including gender and scenario as control variables (see Table 1).[2] Self-oriented perfectionism showed a positive relationship with upward counterfactuals and a negative relationship with downward counterfactuals. In contrast, socially prescribed perfectionism showed a positive relationship with downward counterfactuals. Other-oriented perfectionism did not show any significant relationships with counterfactual thinking. Of the control variables, only gender showed a significant correlation with counterfactual thinking with female students reporting more upward counterfactuals than male students.

Next, we computed two hierarchical regression analyses to examine the three perfectionism dimensions' unique relationships with counterfactual thinking controlling for

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[2]Because there was only one transgender participant, the participant was excluded from all analyses involving gender.

gender. In the first regression, upward counterfactuals was the criterion; in the second, downward counterfactuals (see Table 2). Results showed that controlling for gender and the overlap of the three dimensions did not change the pattern of significant relationships: Self-oriented perfectionism showed a positive relationship with upward counterfactuals and a negative relationship with downward counterfactuals whereas socially prescribed perfectionism showed a positive relationship with downward counterfactuals. (As before, other-oriented perfectionism showed no significant relationships.) Moreover, results showed that perfectionism explained significant variance in counterfactual thinking (17% in upward and 11% in downward counterfactuals).

4. Discussion

The aim of this study was to provide a first investigation of perfectionism and counterfactual thinking differentiating self and social aspects of perfectionism and separating upward and downward counterfactuals. As expected, perfectionism explained significant variance in counterfactual thinking, but the relationships between perfectionism and counterfactual thinking differed depending on the dimension of perfectionism and the direction of counterfactual thinking. Self-oriented perfectionism showed positive relationships with upward counterfactuals (imagining better outcomes) and negative relationships with downward counterfactuals (imagining worse outcomes). In contrast, socially prescribed perfectionism showed positive relationships with downward counterfactuals.

The findings suggest that self-imposed perfectionistic expectations, or—taking Sirois et al.'s (2010) findings with discrepancy into account—the disappointment of such expectations, trigger upward counterfactuals following negative outcomes. Furthermore, they seem to inhibit downward counterfactuals. Self-oriented perfectionists primarily think about how things could have been better. This may make them feel worse, but also motivate and prepare them to avoid

such outcomes in the future. In addition, they think less about how things could have been even worse, indicating that their counterfactual thinking is not motivated by mood repair. In contrast, socially imposed perfectionistic expectations trigger downward counterfactuals following negative outcomes. Socially prescribed perfectionists primarily think about how things could have been even worse. This may make them feel better, but will not motivate and prepare them to avoid the same negative outcomes in the future. In sum, the present findings suggest that counterfactual thinking has primarily an improvement-directed motivational function in self-oriented perfectionists (at the cost of increased negative affect) and a mood repair function in socially prescribed perfectionists.

This may also explain why other-oriented perfectionism did not show any significant relationships with upward and downward counterfactuals. Other-oriented perfectionism has been associated with grandiose narcissism and reduced reactivity to negative reinforcers (e.g., Stoeber & Corr, 2017; Stoeber, Sherry, & Nealis, 2014). Hence, other-oriented perfectionists may not feel a need to engage in counterfactual thinking for self-improvement or mood repair. Further, the present findings dovetail with research on perfectionism and coping that found self-oriented perfectionism associated with task-oriented coping whereas socially prescribed perfectionism was associated with emotion-oriented coping (Dunkley & Blankstein, 2000).

Our study has a number of limitations. It is the first study examining perfectionism and counterfactual thinking where participants did not generate counterfactuals, but responded to questionnaire items measuring counterfactuals, so future studies should examine whether the present findings generalize to self-generated counterfactuals. The sample was predominantly female (81%), and future studies may want to replicate the findings with samples having a greater proportion of males. Furthermore, like the previous studies on perfectionism and counterfactual thinking, this study examined university students and negative academic

outcomes. Future studies may therefore investigate nonstudent samples and nonacademic outcomes (e.g., work, interpersonal relationships) and also include positive outcomes.

Despite these limitations, we think that the study makes a significant contribution to research on perfectionism and counterfactual thinking by showing that (a) perfectionism is a personality disposition that explains individual differences in counterfactual thinking, (b) it is important to differentiate self and social aspect of perfectionism and separate upward and downward counterfactuals, and (c) different dimensions of perfectionism show different relationships with upward and downward counterfactuals.

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Table 1

Bivariate Correlations and Descriptive Statistics

Variable	1	2	3	4	5	6
Perfectionism						
1. Self-oriented perfectionism						
2. Other-oriented perfectionism	.38***					
3. Socially prescribed perfectionism	.31***	.21**				
Counterfactual thinking						
4. Upward counterfactuals	.41***	.12	.06			
5. Downward counterfactuals	−.20**	−.14	.16*	−.12		
6. Gender (female)	.07	−.05	.08	.18*	−.14	
7. Scenario (reversed roles)	.00	.00	.12	−.06	.07	−.06
M	4.53	3.83	3.75	5.13	3.56	n/a
SD	1.02	0.71	0.85	1.11	1.29	n/a
Cronbach's alpha	.90	.77	.85	.88	.88	n/a

Note. $N = 174$. Gender coded 1 = female, 0 = male. Scenario coded 1 = reversed roles, 0 = original roles.

*p < .05. **p < .01. ***p < .001.

Table 2

Summary of Hierarchical Regressions Predicting Counterfactual Thinking

	Upward counterfactuals			Downward counterfactuals		
Predictors	ΔR^2	β	95% CI	ΔR^2	β	95% CI
Step 1: Gender	.03*			.02		
Gender (female)		.18*	.03; .33		−.14	−.29; .01
Step 2: Perfectionism	.17***			.11***		
Self-oriented perfectionism		.43***	.28; .59		−.23**	−.39; −.07
Other-oriented perfectionism		−.01	−.16; .13		−.12	−.27; .04
Socially prescribed perfectionism		−.09	−.23; .06		.27***	.12; .42

Note. $N = 174$. Gender coded 1 = female, 0 = male. 95% CI = 95% confidence interval around β.

*p < .05. **p < .01. ***p < .001.

Supplementary Material A

Scenario 1

You have been given an assignment in one of your classes. It is a group project, and you have been paired up with another student (named Sam) who will work with you. The project is due in three weeks. Unfortunately, the first week is wasted because Sam cannot meet with you to make plans (because of sickness in the family). When you do get together, you split up the background research such that you focus on book chapters and Sam focuses on journal articles. In the course of your background reading, you are pleased to find a book that summarizes your topic rather well. Sam spends the second week learning how to use a computer program that checks for grammar and spelling mistakes, which improves the style and readability of your project. During the last week before it is due, you spend very little time on it because you have an exam in another course. The project is handed in on the assigned due date. Several weeks later the marked project is returned, and you discover that the shared mark for you and Sam is significantly below average (i.e., a 52).

Scenario 2

You have been given an assignment in one of your classes. It is a group project, and you have been paired up with another student (named Sam) who will work with you. The project is due in three weeks. Unfortunately, the first week is wasted because you cannot meet with Sam to make plans (because of sickness in the family). When you do get together, you split up the background research such that Sam focuses on book chapters and you focus on journal articles. In the course of background reading, Sam is pleased to find a book that summarizes the topic rather well. You spend the second week learning how to use a computer program that checks for grammar and spelling mistakes, which improves the style and readability of your project. During the last week before it is due, Sam spends very little time on it because Sam has an exam in another course. The project is handed in on the assigned due date. Several weeks later the marked project is returned, and you discover that the shared mark for you and Sam is significantly below average (i.e., a 52).

Supplementary Material B

Exploratory Factor Analysis of the Counterfactual Thinking Items

Items: I think about ...	Factor 1	Factor 2
how much better things could have been	**.85**	−.04
how much better things could have been if I had acted differently	**.76**	.06
how much better things could have been if Sam had acted differently	**.63**	.01
a how much better mark I could have got	**.81**	−.10
a how much better mark I could have got if I had acted differently	**.75**	.03
a how much better mark I could have got if Sam had acted differently	**.61**	.01
how much worse things could have been	−.04	**.79**
how much worse things could have been if I had acted differently	.07	**.68**
how much worse things could have been if Sam had acted differently	.03	**.78**
a how much worse mark I could have got	−.05	**.78**
a how much worse mark I could have got if I had acted differently	.02	**.75**
a how much worse mark I could have got if Sam had acted differently	−.06	**.74**

Note. $N = 175$. Pattern matrix (maximum likelihood extraction, oblique rotation) with primary

loadings boldfaced. Factor 1 represents upward and Factor 2 downward counterfactuals.

r(Factor 1, Factor 2) $= −.13$.