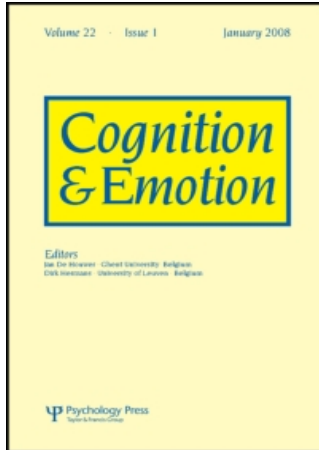


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Dispositional pessimism, defensive pessimism and optimism: The effect of induced mood on prefactual and counterfactual thinking and performance

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Dispositional pessimism, defensive pessimism and optimism: The effect of induced mood on prefactual and counterfactual thinking and performance

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This study analyses the extent to which dispositional pessimists differ from defensive pessimists and optimists in the generation of prefactual and counterfactual thoughts and in their performance in an anagram task, under different conditions of induced mood. Dispositional pessimists performed in a similar manner in all circumstances, recording an equal number of prefactual thoughts. By contrast, optimists and defensive pessimists optimised their performance under positive and negative conditions, respectively. It should be noted that after performing this task, the number of counterfactual thoughts expressed by dispositional pessimists varied according to mood states. The results are discussed in terms of the rigidity of the generalised expectations of dispositional pessimism.

The fact that behaviour is strongly influenced by expectations regarding its results is central to the theory of behavioural self-regulation postulated by Scheier and Carver (1985). According to this theory, when results are seen as desirable and achievable, individuals strive to attain them, even though the process may be slow and difficult. Nevertheless, if the results seem unattainable, individuals tend to give up and do not commit themselves to the behaviour that enables them to achieve their goals. On the basis of this same theory, optimists are defined as those whose general expectations involve achieving a positive result, whereas pessimists are those who generally expect a negative outcome.

The differences between optimists and pessimists have been the focus of numerous empirical investigations. A number of these studies have

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researched the differences between optimists and a specific type of pessimism, namely, defensive pessimism (Norem & Cantor, 1986a; Norem & Illingworth, 1993; Showers, 1992). Defensive pessimists show an initial feeling of anxiety and low perceived control prior to undertaking the task (Norem & Cantor, 1986b). By contrast, optimists do not make a stressful assessment of the tasks they are about to undertake, showing moderate control over the situation. However, optimists and defensive pessimists show similar levels of performance. This is because defensive pessimists focus on the negative aspects of the situation, whereby they can control anxiety beforehand so it does not affect task performance (Showers, 1992).

Dispositional pessimists, like defensive pessimists, anticipate negative results. Nonetheless, each one of their performances differs. Dispositional pessimists show less perceived control, which means they do not engage in the behaviour required for achieving their goals. This generates a feeling of helplessness that makes these individuals focus more on their limitations for performing the tasks, generating a spiral of anxiety that overwhelms them, and which increases over time (Hammontree & Ronan, 1992; Norem & Chang, 2002; Showers & Rubens, 1990). Accordingly, dispositional pessimists differ also from optimists, as the latter avoid considering undesired results that may compromise their positive perception and control of the situation (Spencer & Norem, 1996).

Elsewhere, abundant research has suggested that a person's evaluative judgement and the strategies used in resolving problems are influenced by mood states (Schwartz & Clore, 1996). It can therefore be considered that the strategies commonly used by optimists, defensive pessimists and dispositional pessimists vary according to the mood they are in. In this sense, there might therefore be mood states that facilitate or inhibit the typical strategies of each group.

There has been a surge of empirical research in recent years on the thoughts people generate before and after an event. Sanna (Sanna, 1996, 1998; Sanna, Turley-Ames, & Meier, 1999) studied whether a group of optimists and defensive pessimists generated different thoughts before (i.e., prefactual) and after (i.e., counterfactual) resolving an anagram task, under different conditions of induced mood. The results showed that defensive pessimists achieved better results when they generated upward prefactual thoughts (i.e., when they expected negative results), and considered those resources they lacked for achieving the desired outcome. In turn, optimists generated downward counterfactual thoughts regardless of the results obtained (i.e., they thought their results might have been worse if they had not done something).

The present research

There have been few studies that have investigated the extent to which dispositional pessimists might differ from optimists and defensive pessimists under different mood states. It would therefore be interesting to ascertain whether there is any condition under which the dispositional pessimist group might record better results linked to some kind of specific prefactual or counterfactual thinking. If this were the case, we would have a different perspective with regard to the studies conducted by Scheier and Carver (1985) and by Showers and Rubens (1990). These studies relate dispositional pessimists to negative consequences or outcomes, and even to a state of helplessness, given that when these individuals anticipate negative results they show difficulties in planning forthcoming events. Once a negative outcome materialises, they think about what they might have done, when there is no way of changing the result.

This study was therefore intended to investigate the extent to which dispositional pessimists differ from defensive pessimists and optimists in terms of the prefactual and counterfactual thinking generated and the solving of anagrams, under different conditions of induced mood.

METHOD

Participants

Four hundred sixty-seven school-age adolescents were given a series of questionnaires aimed at assessing different intellectual abilities. There were those who did not properly complete some of the questionnaires used to discriminate the groups, while others failed to carry out the appropriate tasks relating to the categorisation of prefactual and counterfactual thinking. The final sample thus comprised 387 participants (60.3% male and 39.7% female, mean age = 16.61, $SD = 1.18$), ranging from 15 to 20 years.

Measures

Optimistic and pessimistic expectations. These were assessed in accordance with Fernández and Bermúdez (2001a,b) using two instruments. The first was the Life Orientation Test-Revised (LOT-R; Scheier, Carver, & Bridges, 1994), adapted for the Spanish population by Perczerk, Carver, Price, and Pozo-Kaderman (2000). Cronbach's α ranged from .76 (pessimism) to .85 (optimism), results which are similar to those found by previous authors. The second instrument used to assess expectations was the Optimism-Pessimism Questionnaire (OPQ; Norem & Cantor, 1986a),

adapted for the Spanish population by Fernández and Bermúdez (1999). In the present study, the internal consistency of both the optimism scale (Cronbach's $\alpha = .90$) and the defensive pessimism scale (Cronbach's $\alpha = .88$) was acceptable.

Mood states. These were assessed using the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988), in the version adapted by Sandín et al. (1999). In our case, acceptable indices of internal consistency were obtained, both for the negative subscale (Cronbach's $\alpha = .89$), and for the positive subscale (Cronbach's $\alpha = .85$).

Anagram task. The anagram task was the one proposed by Fernández and Bermúdez (2001b). It has 20 items consisting of disordered groups of letters hiding meaningful words. These words were selected by the authors on the basis of frequency of use according to a dictionary of usage and frequency (Juilland & Chang-Rodríguez, 1964). The objective was to construct a task of moderate-to-high difficulty. To accomplish this, 10 words of medium frequency of use, 8 of low frequency and 2 of high frequency were selected. The time set for the task was 24 minutes. The score was established as the total number of anagrams solved correctly.

Prefactuals and counterfactuals. We followed the same procedure as Sanna (1998) to ask the participants to generate prefactuals and counterfactuals before and after the anagram task.

Procedure

The participants were assigned to the groups based on the scores they obtained in the LOT and the OPQ. For the defensive pessimist and optimist groups we used the procedure carried out by Fernández and Bermúdez (1999), and for the dispositional pessimist group the procedure used by Cantor and Norem (1989) and Elliot and Church (2003). One hundred participants of the optimist group and 72 participants of the dispositional pessimist group were selected, both groups coinciding as such on both questionnaires. Forty-three defensive pessimists were selected according to the scores obtained on the LOT scale, whereas 65 were identified by the OPQ. Since the OPQ questionnaire is specific for selecting this group, we kept the number to 65.

The participants were randomly assigned to the Negative, Positive, and Control Mood states. For the negative condition, a selection of sad scenes from *Schindler's List* was shown accompanied by the film's soundtrack, whereas an episode of the comedy series *Friends* was used for the positive condition. The videos lasted approximately 25 minutes. A control (no mood

induction) condition was also included in order to permit appropriate comparisons with the above groups, in which mood states were not directly manipulated before task performance. This group was told that their computers were having difficulties and they could not view the presentation, but that they could carry out the rest of the experiment.

After viewing the presentation, the participants were given the PANAS questionnaire on which to record their current feelings. They were subsequently given a spatial organisation test to be completed in four minutes. As in the work of Sanna (1998), the purpose of this task was to create a brief interval between the evaluation of mood state and the task to be performed.

Subsequently, the participants had to solve 10 example anagrams: 5 of low difficulty and 5 of high difficulty. A 3-minute interval was set for the participants to process all the information received and experiences undergone. Finally, they were asked to generate prefactual thoughts and then code them.

The participants then had to solve 20 anagrams. The task was presented as a measure of skill. All the anagrams had a solution, and the participants were told that if they had problems in solving any one of them, they should go on to the next one, and try again later with the unsolved ones. Once the task had been completed, they were asked to generate counterfactuals, which they had to code.

RESULTS

Manipulation check

To establish whether induction of the mood state had elicited different outcomes in the negative mood state in the different groups, we carried out a 3 (Group: dispositional pessimists, defensive pessimists, and optimists) \times 3 (Mood condition: positive, negative, and control) analysis of variance (ANOVA) on negative mood. The analysis for the Group variable revealed a significant effect, $F(2, 238) = 24.00$, $p < .001$, which was also the case for Mood condition, $F(2, 238) = 42.04$, $p < .001$. There was no significant interaction effect. For the same Group variable, Bonferroni's adjustment comparisons showed that defensive pessimists felt worse than optimists (Mean Difference = 7.59, $p < .001$). No significant differences were obtained between the former and defensive pessimists. For the Mood condition, Bonferroni's adjustment comparisons showed that the groups felt worse under the negative condition than under the control condition (Mean Difference = 5.01, $p < .001$), and the groups felt worse under the control condition than under the positive condition (Mean Difference = 3.79, $p < .001$).

For the positive mood, a 3 (Group) \times 3 (Mood condition) ANOVA revealed a significant effect for the Group variable, $F(2, 238) = 6.44$, $p = .002$,

which was also the case for the Mood condition effect, $F(2, 238) = 6.44$, $p < .001$. There was no significant interaction effect. For the Group variable, Bonferroni's adjustment comparisons showed that optimists felt better than dispositional pessimists (Mean Difference = 8.24, $p < .001$), and had no significant differences with defensive pessimists. For the Mood condition, Bonferroni's adjustment comparisons showed that the groups felt better under the positive condition than under the control condition (Mean Difference = 2.99, $p = .001$), and they felt better under the control condition than under the negative condition (Mean Difference = 5.90, $p < .001$).

Main analyses

Several 3 (Group) \times 3 (Mood condition) ANOVAS were carried out for each dependent variable (upward prefactuals; downward prefactuals, anagrams, upward counterfactuals, and downward counterfactuals). All ANOVAS yielded significant interactions, and we therefore applied multiple pairwise comparisons (i.e., Bonferroni's adjustment). Only the comparisons between the dispositional pessimist group and the other two groups were taken into account in each of the conditions (see Table 1).

Upward prefactuals. A 3×3 ANOVA showed a significant Group effect, $F(2, 238) = 38.00$, $p < .001$, a significant Mood condition effect, $F(2, 218) = 21.03$, $p < .001$, and a significant interaction effect, $F(4, 238) = 15.57$, $p < .001$. Multiple pairwise comparisons revealed, on the one hand, that under the control condition dispositional pessimists generated fewer upward prefactuals than defensive pessimists. These differences persisted under the negative condition, but disappeared under the positive condition. On the other hand, dispositional pessimists did not differ from optimists under the control condition. However, in comparison with optimists, dispositional pessimists generated fewer upward prefactuals under the negative condition, and more upward prefactuals under the positive condition (see Table 1).

Downward prefactuals. A 3×3 ANOVA revealed a significant Group effect, $F(2, 238) = 20.75$, $p < .001$; a significant Mood condition effect, $F(2, 238) = 14.85$, $p < .001$ and a significant interaction effect, $F(4, 238) = 8.06$, $p < .001$. Multiple pairwise comparisons revealed, on the one hand, that under the control condition dispositional pessimists generated fewer downward prefactuals than defensive pessimists. These differences persisted under the positive condition, but disappeared under the negative condition. On the other hand, dispositional pessimists did not differ from optimists under either the control or positive conditions. However, under the negative condition, the former generated fewer downward prefactuals than the latter (see Table 1).

TABLE 1

Difference in means between the dispositional pessimist group (DisP) and the defensive pessimist (DefP) and optimist (Opt) groups under the control, negative and positive conditions for the following variables: upward prefactuals, downward prefactuals, anagram performance, upward counterfactuals, downward counterfactuals

Variables	Groups	Conditions		
		Control	Negative	Positive
Upward prefactuals	DisP vs. DefP	-1.681**	-2.391**	0.283
	DisP vs. Opt	0.403	-1.250**	0.767*
Downward prefactuals	DisP vs. DefP	-0.843*	-0.385	-1.645**
	DisP vs. Opt	-0.267	-0.700*	-0.144
Anagram performance	DisP vs. DefP	-2.713*	-5.811**	-0.725
	DisP vs. Opt	-3.445**	-1.075	-3.733**
Upward counterfactuals	DisP vs. DefP	-0.424	1.250**	0.767*
	DisP vs. Opt	1.500**	2.225**	0.508
Downward counterfactuals	DisP vs. DefP	-1.047*	-0.449	-0.639
	DisP vs. Opt	-2.875**	-1.867**	-3.447**

Note: * $p < .05$; ** $p < .001$.

Anagram performance. A 3×3 ANOVA pointed to a significant Group effect, $F(2, 238) = 23.58$, $p < .001$; no significant Mood condition effect, $F(2, 238) = 1.44$, $p = ns$, and a significant interaction effect, $F(4, 218) = 12.87$, $p < .001$. Multiple pairwise comparisons revealed that under the control condition dispositional pessimists solved fewer anagrams than defensive pessimists. These differences persisted under the negative condition, but disappeared under the positive condition. By contrast, under the control condition, dispositional pessimists solved fewer anagrams than optimists. These differences persisted under the positive condition, but disappeared under the negative condition (see Table 1).

Upward counterfactuals. A 3×3 ANOVA revealed a significant Group effect, $F(2, 237) = 36.13$, $p < .001$, but no significant Mood condition effect, $F(2, 237) = 0.18$, $p = ns$, and a significant interaction effect, $F(4, 237) = 6.72$, $p < .001$. Multiple pairwise comparisons revealed that dispositional pessimists did not differ from defensive pessimists under the control condition. However, in comparison with defensive pessimists, dispositional pessimists generated more upward counterfactuals under the negative condition, and fewer under the positive condition. By contrast, under the control condition, dispositional pessimists generated more upward counterfactuals than optimists. These differences persisted under the negative condition, but disappeared under the positive condition (see Table 1).

Downward counterfactuals. A 3×3 ANOVA showed a significant Group effect, $F(2, 237) = 111.84$, $p < .001$; a significant Mood condition effect, $F(2, 237) = 5.58$, $p = .004$, and a significant interaction effect, $F(4, 237) = 4.15$, $p = .003$. Multiple pairwise comparisons showed that under the control condition, dispositional pessimists generated fewer downward counterfactuals than defensive pessimists. These differences disappeared under the positive and negative conditions. Nevertheless, dispositional pessimists generated fewer downward counterfactuals than optimists under the control condition. These differences persisted under the positive and negative conditions (see Table 1).

Additional analyses

Several analyses of correlations were conducted to assess how prefactual thinking related to the number of anagrams solved, and these to counterfactual thoughts.

Correlations between prefactual (i.e., upward and downward) thinking and anagram performance. The first correlation analyses revealed that in the dispositional pessimist group, the anagram outcomes were related to more upward prefactuals under all conditions. The defensive pessimist group showed only that the result obtained was related to more downward prefactuals, with this occurring under the positive condition. In the optimist group, the number of anagrams solved was related to fewer prefactual thoughts (i.e., upward and downward), only under the control condition (see Table 2).

In order to render our results more comparable with those obtained by Sanna (1998, Experiment 1), we also established correlations between prefactual thoughts and anagrams, after subtracting the number of downward prefactuals from the number of upward prefactuals for each individual. This index revealed that, under all conditions, in defensive pessimists the prefactuals thoughts were related to the anagrams, $r(66) = .34$; $p < .001$. However, in the optimist group there was no significant correlation under any of the conditions.

Correlations between anagram performance and counterfactual (i.e., upward and downward) thinking. We undertook a second analysis of correlations, which on this occasion involved the result obtained in the anagram task and counterfactual thinking. For the dispositional pessimist group, under the control and negative conditions, upward counterfactuals were related to a worse performance. Under the positive condition, counterfactuals (i.e., upward and downward) were related to better performance. In the defensive pessimist group, under the negative and positive conditions,

TABLE 2
Correlations between the study variables; by groups and mood conditions

Groups	Variables	Mood conditions								
		Control			Negative			Positive		
		1	2	3	1	2	3	1	2	3
DisP	1. Anagram performance	—	-.520** (N = 24)	.220 (N = 24)	—	-.642** (N = 24)	-.054 (N = 24)	—	.892** (N = 24)	.826** (N = 24)
	2. Upward	.802** (N = 24)	—	.065 (N = 24)	.700** (N = 24)	—	-.092 (N = 24)	.563** (N = 24)	—	.866** (N = 24)
	3. Downward	.190 (N = 24)	.242 (N = 24)	—	.620** (N = 24)	.778** (N = 24)	—	.564** (N = 24)	.766** (N = 24)	—
DefP	1. Anagram performance	—	-.449 (N = 17)	.072 (N = 17)	—	-.797** (N = 26)	.805** (N = 26)	—	-.729** (N = 23)	.896** (N = 23)
	2. Upward	.263 (N = 17)	—	-.174 (N = 17)	-.076 (N = 26)	—	-.727** (N = 26)	-.393 (N = 23)	—	-.827** (N = 23)
	3. Downward	.355 (N = 17)	-.163 (N = 17)	—	-.053 (N = 23)	-.550** (N = 23)	—	.542** (N = 23)	-.314 (N = 23)	—
Opt	1. Anagram performance	—	-.742** (N = 24)	.362 (N = 24)	—	.032 (N = 30)	-.455* (N = 30)	—	-.598** (N = 45)	-.739** (N = 45)
	2. Upward	-.455* (N = 25)	—	-.538** (N = 24)	.247 (N = 30)	—	-.547** (N = 30)	-.239 (N = 45)	—	.177 (N = 45)
	3. Downward	-.436* (N = 25)	.496* (N = 25)	—	-.200 (N = 30)	.076 (N = 30)	—	-.084 (N = 45)	.440** (N = 45)	—

Note: Correlations between prefactuals (upward and downward) and anagram performance are reported below the diagonal; correlations between anagram performance and counterfactuals (upward and downward) appear above the diagonal. * $p < .05$; ** $p < .001$. Some participants chose not to respond to some items, therefore N s vary.

the upward counterfactuals were related to a worse performance, while downward counterfactuals were related to a better performance. For the optimist group, under the control and positive conditions, the upward counterfactuals were related to a worse performance, and under the negative and positive conditions, the downward counterfactuals were also related to a worse performance (see Table 2).

DISCUSSION

This study examined the extent to which dispositional pessimists differ from defensive pessimists and optimists regarding the prefactual and counterfactual thoughts generated and the solving of anagrams, under different conditions of induced mood. On the one hand, dispositional pessimists differed from defensive pessimists mainly under the negative condition, as they anticipated fewer negative outcomes and obtained worse outcomes. On the other hand, dispositional pessimists differed from optimists under the positive condition. Although both groups anticipated an equal number of positive outcomes, dispositional pessimists obtained the worst outcomes. All these differences between groups were due to the variations arising from mood induction in the groups of defensive pessimists and optimists. The dispositional pessimist group did not change as a result of mood states.

Accordingly, we shall now comment on these variations according to mood in each of these two groups, which are consistent with earlier research, such as that conducted by Sanna (1998). Under the negative condition, defensive pessimists focused on the negative aspects of the situation, anticipated negative results and obtained their best outcomes. Under the positive condition, they anticipated more positive outcomes, and obtained their worst outcomes. As in Sanna (1998), we found that, considering all the conditions jointly, when defensive pessimists generated greater prefactual thoughts, they obtained a better outcome in the anagram task. These results suggest that the negative condition could be preferential for defensive pessimists. This might imply that they perform better when they are not overconfident and prepare the task.

As regards optimists, they did not generate prefactual thoughts under the positive condition and obtained better outcomes, which might make it their preferential condition. However, under the negative condition, they anticipated more negative outcomes than in the prior condition, and this had a negative bearing on their performance. In accordance with Spencer and Norem (1996), these results suggest that optimists try to ignore relevant aspects of the situation, and do not consider undesirable outcomes, since they believed they had more possibilities of obtaining better outcomes.

However, the association between prefactual thoughts and the outcomes of the anagram task does not seem clear, since we found an association only under the control condition, for the optimist group. The data in Sanna (1998) seem to conflict with this. Indeed, he only found significant relationships under the negative condition (Experiment 1), or in the absence of such an association, under the different conditions (Experiment 3). Consequently, the supposed influence of prefactual thoughts on subsequent performance, at least in the optimist group, requires more empirical research.

The behaviour of the dispositional pessimist group differed in comparison to the other two groups. We did not find any conditions under which better results were obtained, nor did we encounter changes as regards anticipatory thoughts through the different conditions. This seems to indicate that dispositional pessimists neither plan nor prepare the task to be undertaken, which suggests they are in a state of helplessness. Bermúdez and Fernández (2001a) showed that dispositional pessimists are overwhelmed when they focus excessively on the situation's negative aspects. This compromised the level of anticipation and planning required for performing the task. In spite of this, in our study we found that, under all conditions, when dispositional pessimists anticipated positive or negative outcomes, they performed the task better. It is therefore possible that dispositional pessimists can overcome their state of helplessness if they generate anticipatory thoughts.

After performing the anagram task, dispositional pessimists, under the negative condition, generated more upward counterfactuals than defensive pessimists. Under the positive condition, defensive pessimists were the ones who used this type of thinking more than dispositional pessimists. Furthermore, dispositional pessimists generated fewer downward counterfactuals than optimists, under all conditions.

Once again, the counterfactual thoughts of defensive pessimists and optimists are similar to those found in prior research (Norem & Illingworth, 1993; Sanna, 1996, 1998). Thus, in our study we found that defensive pessimists did not often generate upward counterfactual thinking under negative conditions. Nonetheless, under the positive condition, they generated more upward counterfactuals. Under this condition, upward counterfactuals were related to a worse performance. As in prior research (Nolen-Hoeksema, 1991; Nolen-Hoeksema, Parker, & Larson, 1994; Sanna, 1998), the greater use of this type of thinking suggests that these individuals are trying to use their preferential thoughts (i.e., upward prefactuals) retrospectively, generating "ruminations" about what they might have done, once there is no option left open to them. It could even be considered that this type of thinking fosters guilt among those taking part, for not having adopted measures that might have prevented the negative outcomes obtained.

As for the optimists, under all conditions, we found that once they had completed the task they more often justified the outcomes obtained (i.e.,

downward counterfactuals). Under the positive condition, we noted that this type of thinking was more frequent when the performance was poorer. All this suggests that downward counterfactuals are part of the preferential strategies of optimists, as observed in prior research (Sanna, 1996, 1998). Other research has suggested that optimists are more committed to strategies of a retrospective nature (Norem & Cantor, 1986a; Norem & Illingworth, 1993; Showers, 1992). It could even be considered that this type of thinking is an attempt to re-establish the emotional state and justify the outcomes obtained, as it might have been worse.

The main finding of this research was that the dispositional pessimist group shows flexibility in the counterfactuals generated according to the mood induced. This contrasts with the rigidity that this group upholds in its prefactual thinking. Such flexibility applies in both negative and positive conditions. Thus, under the negative condition, dispositional pessimists focus more on what might have been done (i.e., upward counterfactuals). This thinking is more frequent when they have resolved a fewer number of anagrams. In turn, under the positive condition, they focus less on what might have been done (i.e., upward counterfactuals), and this type of thinking is more frequent when better results have been recorded in the anagram task.

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