

Research Reports

Humorous Coping and Serious Reappraisal: Short-Term and Longer-Term Effects

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Abstract

The management of unhelpful negative emotions has been addressed by two literatures, one focused on coping via humor, and the other focused on emotion regulation. In the present study, we directly compared humorous coping with conventional (serious) reappraisal. We expected humorous coping to be more effective than serious reappraisal in the short and longer term. Fifty-seven participants used either humorous coping, serious reappraisal, or attended naturally while viewing negative pictures and then rated their positive and negative emotional responses. One week later, participants viewed and rated the pictures again. In the short-term, while humorous coping was more difficult than serious reappraisal, it was more effective in down-regulating negative and up-regulating positive emotions. In the longer-term, both strategies had beneficial effects on positive emotions while humorous coping was more beneficial than serious reappraisal in down-regulating negative emotions. This is the first study that empirically shows short and longer-term beneficial effects of humorous coping versus serious reappraisal in the context of emotions elicited by negative stimuli.

Keywords: emotion, emotion regulation, humor, coping, reappraisal

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When unhelpful negative emotions arise, what should be done? This question has been addressed by two rich, and mostly separate, research literatures. The first is focused on humor, which has been described as an effective coping strategy for dealing with negative life circumstances (e.g., Freud, 1928; Lefcourt & Martin, 1986; Martin & Lefcourt, 1983; Vaillant, 2000). The second is focused on emotion regulation, which has been described as an effective means of down-regulating negative emotions (e.g., Gross, 1998, 2007).

Humor has long been seen as an adaptive response to adversity and difficult life circumstances (Herth, 1990; Samson & Gross, 2014; Sanders, 2004) and can be seen as a buffer against negative effects of stress and as a means of dealing with negative situations in an adaptive way (Abel, 2002). Anecdotal evidence suggests that humor can be a beneficial coping mechanism during war (Ford & Spaulding, 1973; Henman, 2001) and even in concentration camps (Ostrower, 2000). Consistent with these claims, there is emerging empirical evidence that humor moderates stress responses and helps people deal with negative experiences (Kuiper, Martin, & Olinger, 1993; Kuiper, McKenzie, & Belanger, 1995). Furthermore, the impact of humor on the recovery from negative

emotions has been examined in the context of a self-threat paradigm (Geisler & Weber, 2010) and recent studies have shown that distraction may serve as one mechanism by which humor can attenuate negative emotions (Strick, Holland, van Baaren, & van Knippenberg, 2009a).

Emotion regulation refers to processes that influence which emotions people have, when they have them, and how they experience and express these emotions (Gross, 1998). One particularly effective form of emotion regulation is cognitive reappraisal, which refers to changing the meaning of an emotion-eliciting situation so as to change its emotional impact. Cognitive reappraisal has been shown to decrease negative emotion both in the moment (e.g., Thiruchselvam, Blechert, Sheppes, Rydstrom, & Gross, 2011) and after brief delays (MacNamara, Ochsner, & Hajcak, 2011; Thiruchselvam et al., 2011).

In the present study, we were interested in directly linking these two literatures in an experimental paradigm that focused on short and longer-term effects. More specifically, we aimed to compare the effects of humorous coping and serious reappraisal on negative and positive emotion. While serious reappraisal works to down-regulate negative emotions, humor is a means to evoke positive emotions. We hypothesized that in the short-term, humorous coping would lead to greater increases in positive emotion and decreases in negative emotion than serious reappraisal. Our expectation was that both strategies would share the underlying process of reframing the meaning of a situation. However, in humorous coping, we expected this change of perspective to be more dramatic, due to the absurd and often incongruent elements that are inherent to humor. This might enable a person to distance him or herself more from a negative event. In addition, the positive emotions in the humorous condition may help to down-regulate negative emotions even more effectively than serious reappraisal. This aligns with the findings that positive emotions have the power to “undo” negative emotions (Fredrickson, 1998; Fredrickson & Levenson, 1998; Fredrickson, Mancuso, Branigan, & Tugade, 2000). In addition, we expect these effects to persist over time and therefore hypothesize that humorous coping, compared to serious reappraisal, would lead to greater increases in positive emotion and greater decreases in negative emotion in the longer-term.

Method

Participants

Sixty-one participants were recruited from two West Coast universities. After excluding four participants (three were unable to use at least one of the strategies, and one participant did not complete part two of the study), the final sample consisted of 57 participants (38.6% male, mean age: 19.70 years, $SD = 2.38$). Fifty-three percent of the participants described themselves as Caucasian, 22.8% Asian/Asian-American, 8.8% African-American, 5.3% Hispanic, 1.8% Arabic, 1.8% Native American, and 7.0% declined to answer. Participants were compensated with two credits toward their course participation, and written informed consent was obtained prior to the experiment.

Procedure

Participants were extensively instructed in the use of humorous coping and serious reappraisal prior to the task, and there were four practice trials before the start of the task. In order to facilitate the generation of humorous coping and serious reappraisals during practice, examples were provided. One humorous coping practice trial consisted of a picture of a man with stitches on his forehead. An example of humorous coping was: “Now he has a great zombie costume for Halloween.” One serious reappraisal practice trial consisted of a picture of veterinarians conducting surgery on a dog. An example of serious reappraisal was: “Maybe the dog was sick, but now he’s being treated and he’ll be better soon.”

Each participant saw 80 pictures from the International Affective Picture System (IAPS, Lang, Bradley, & Cuthbert, 1995): 64 negative (valence: $M = 2.60$, $SD = 1.54$; arousal: $M = 5.55$, $SD = 2.18$; prototypical examples: men with weapons, sick people in hospitals, injured animals or people, piles of garbage in nature, crashed cars or airplanes) and 16 neutral (valence: $M = 5.35$, $SD = 1.32$; arousal: $M = 3.65$, $SD = 1.95$; prototypical examples: commonplace objects such as spoons or a chessboard). The pictures were presented in two humor and two serious blocks (with 20 pictures per block), which were alternated. Half of the participants started with a humor block. The pictures were randomized to each block and each condition. Each block consisted of 8 humorous coping or serious reappraisal trials, 8 “watch negative” trials, and 4 “watch neutral” trials, during which participants responded naturally, i.e., let their emotions occur freely without any attempt to regulate them. Trial order was randomized.

The structure of each trial was as follows. After an instruction slide (4 seconds), each picture was presented on the screen (10 seconds). After each coping/reappraisal trial, the participant was asked whether they were able to successfully generate the target response (“yes,” “sort of,” “no”). Trials in which participants indicated they were not able to generate a response (“no” response) were excluded from analysis (15.95% were excluded). The participant was then instructed to type out their humorous coping response or serious reappraisal, or to explain why it was difficult in case they did not come up with a humorous coping response or serious reappraisal. They then rated how difficult it was and how negative and positive they felt, each on a scale from 1 (“not at all”) to 9 (“very much”). At the end of each block, participants completed a short verbal fluency task to assess cognitive flexibility, which is not relevant here.

One week later, participants received an email with a link to an online survey in which they were asked to rate their positive and negative emotional responses to the same pictures.

Analytic Strategy

We utilized a multilevel modeling (MLM) approach to test the main effects of condition and block type, as well as the condition \times block type interaction. As an alternative to ANOVA models, MLM is often better suited for analyzing data from repeated measures designs as it is robust to violations of homoscedasticity and sphericity, accommodates missing data (i.e., no listwise deletion), and is applicable for data with multiple levels of nesting (Hoffman & Rovine, 2007; Maas & Snijders, 2003). Furthermore, MLM has been shown to be more powerful compared to ANOVA models implementing corrections for sphericity violations (Quené & van den Bergh, 2004). Preliminary analyses (i.e., Mauchly’s test) indicated that sphericity was violated across the levels of condition (regulate, watch negative, watch neutral) on all outcomes: Short-term positive, $\chi^2(2) = 7.32$, $p < .05$, and negative emotion, $\chi^2(2) = 13.16$, $p < .01$, long-term positive, $\chi^2(2) = 72.44$, $p < .01$, and negative emotion, $\chi^2(2) = 47.65$, $p < .01$.

Model specifications were as follows: (1) Condition (regulate, watch negative, watch neutral), block type (humor or serious), and the interactions of dummy coded condition \times block type (regulate \times humor; watch negative \times humorⁱ) were included as fixed effects. (2) Random slopes were specified to allow for individual variation by condition and type; this specification accommodates violations of sphericity and homoscedasticity. (3) Subject, block, and trial, were included as random effects. Picture stimuli and regulation blocks were fully crossed with individuals (i.e., every individual views every picture in every block), thus random subject, block, and item variability are treated as crossed at the same level (vs. nested).

This model was run four times to test the effects of condition and block regulation type on each of four outcomes: short-term positive emotion, short-term negative emotion, long-term positive emotion, and long-term negative emotion. All analyses were conducted using SAS PROC MIXED.

Results

Preliminary Analyses

Humorous coping was rated as more difficult ($M = 3.80$, $SD = 1.23$) than serious reappraisal ($M = 3.43$, $SD = 1.17$), $t(56) = 3.72$, $p < .001$. Consistent with these ratings, participants were less often able to successfully regulate responses to the picture in the humorous condition ($M = 58.7\%$, $SD = 21.21$) than in the serious condition ($M = 70.8\%$, $SD = 16.18$), $t(56) = -4.77$, $p < .001$. Participants were “somewhat” successful more frequently in the humorous ($M = 20.9\%$, $SD = 14.12$) than in the serious condition ($M = 17.5\%$, $SD = 12.28$), $t(56) = 2.01$, $p < .05$, and were more often unsuccessful in using humorous coping ($M = 20.3\%$, $SD = 16.16$) compared to serious reappraisal ($M = 11.6\%$, $SD = 11.03$), $t(56) = 4.51$, $p < .001$.

Short-Term Effects of Humorous Coping Versus Serious Reappraisal

For negative emotion, the effect of block type differed by condition ($\gamma = -0.38$, $SE = 0.12$, $p < .01$). In the regulation condition, humorous coping ($M = 3.62$, $SD = 0.18$) resulted in less negative emotion than serious reappraisal ($M = 4.25$, $SD = 0.18$), $t(157) = -6.85$, $p < .01$; see [Figure 1](#). As expected, no effect of block type (humorous/serious) on negative emotion was observed within the ‘watch negative’, $t(126) = -0.98$, $p = .33$, and ‘watch neutral’, $t(303) = -1.29$, $p = .20$, conditions. All estimates are reported in [Table 1](#).

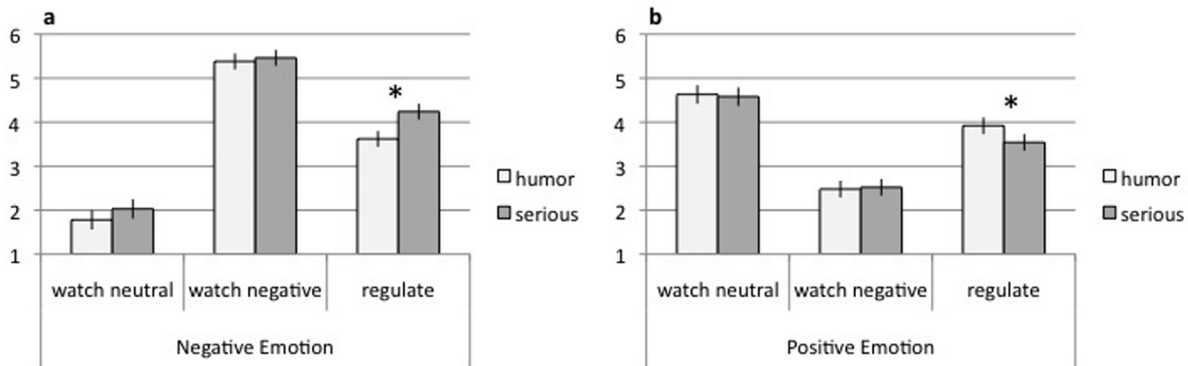
For positive emotion, the effect of regulation type also differed by condition ($\gamma = 0.32$, $SE = 0.12$, $p < .01$). In the regulation condition, humorous coping ($M = 3.92$, $SD = 0.19$) resulted in greater positive emotion compared to serious reappraisal ($M = 3.55$, $SD = 0.19$), $t(173) = 4.23$, $p < .01$; see [Figure 1](#). Similarly, no effect of reappraisal type on positive emotion was observed within the ‘watch negative’, $t(135) = -0.44$, $p = .66$, and ‘watch neutral’, $t(343) = 0.46$, $p = .64$, conditions.

The effects of block type and condition varied across individuals for both positive and negative emotion ($ps < .05$; see slope variances in [Table 1](#)), indicating that the equal variances assumption was not tenable for short-term ratings.

Longer-Term Effects of Humorous Coping Versus Serious Reappraisal

For longer-term negative emotion, the effect of block type differed by condition ($\gamma = -0.33$, $SE = 0.11$, $p < .01$). In the regulation condition, humorous coping ($M = 4.48$, $SD = 0.21$) resulted in less negative emotion compared to serious reappraisal ($M = 4.80$, $SD = 0.21$), $t(157) = -4.53$, $p < .01$; see [Figure 1](#). No effect of block type on negative emotion was observed within the ‘watch negative’, $t(126) = -0.01$, $p = .99$, and ‘watch neutral’, $t(303) = 0.07$, $p = .94$.

Short-term effects



Longer-term effects

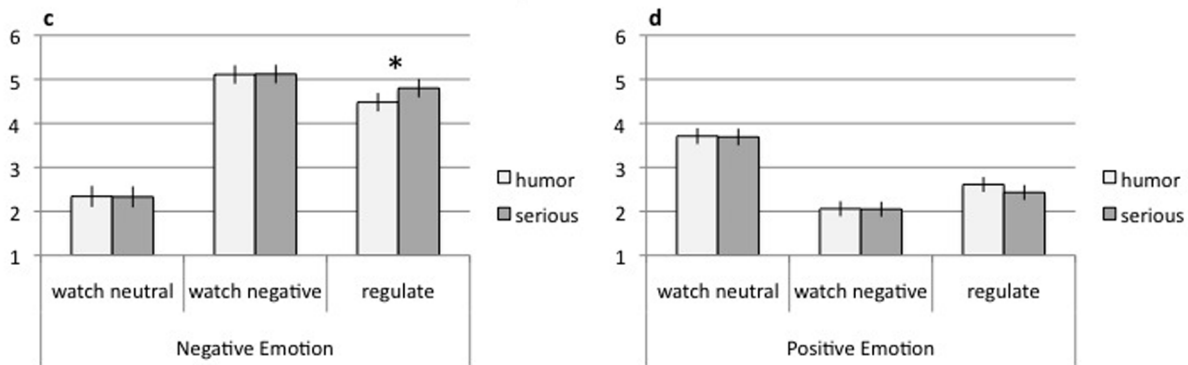


Figure 1. Short-term and longer-term emotional effects of humorous coping and serious reappraisal.

Note. Means of positive and negative emotions by block type (humorous coping and serious reappraisal) and condition (watch neutral, watch negative, regulate); short-term effects on a) negative emotion and b) positive emotion, longer-term effects on c) negative emotion and d) positive emotion.

* $p < .01$.

For long-term positive emotion, the effect of block type did not differ by condition ($p_s > .05$). However, main effects of condition were observed (see Figure 1); participants reported less positive emotion in the 'watch negative' ($M = 2.06$, $SD = 0.12$; $\gamma = -1.64$, $SE = 0.22$, $p < .01$) and 'regulate' ($M = 2.52$, $SD = 0.13$; $\gamma = -1.26$, $SE = 0.22$, $p < .01$) conditions, compared to the 'watch neutral' condition ($M = 3.70$, $SD = 0.24$). In addition, positive emotion was lower in 'watch negative' condition compared to the regulate condition, $t(79) = -5.41$, $p < .01$. Significant variability was observed for the regulate condition for both positive and negative emotion ($p_s < .05$).

Table 1

Multilevel Model Parameter Estimates for Short-Term and Longer-Term Emotion Outcomes

Parameter	Short-Term				Longer-Term			
	Negative Emotion		Positive Emotion		Negative Emotion		Positive Emotion	
	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE
Fixed Effects								
Intercept	2.02**	0.18	4.58**	0.23	2.30**	0.32	3.69**	0.24
Block (Humor)	-0.25*	0.11	0.05	0.10	0.01	0.09	0.02	0.08
Condition								
Watch Negative	3.45**	0.24	-2.06**	0.19	2.82**	0.26	-1.64**	0.22
Regulate	2.23**	0.21	-1.03**	0.21	2.51**	0.26	-1.26**	0.22
Humor × Watch Neg.	0.16	0.11	-0.08	0.11	-0.01	0.11	-0.01	0.10
Humor × Regulate	-0.38**	0.12	0.32**	0.12	-0.33**	0.11	0.16	0.10
Random Effects								
Intercepts								
Subject	0.38**	0.11	0.94**	0.21	2.35**	0.46	0.74**	0.14
Block	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00
Picture	0.35**	0.06	0.14**	0.03	0.34**	0.07	0.07**	0.02
Residual	1.88**	0.04	1.84**	0.04	1.78**	0.04	1.41**	0.03
Slopes								
Block (Humor)	0.09**	0.03	0.07**	0.02	0.00	0.00	0.00	0.01
Watch Negative	1.45**	0.34	0.19*	0.11	0.08	0.07	0.00	0.00
Regulate	0.83**	0.22	0.46**	0.14	0.13*	0.07	0.15**	0.05
Model Fit								
AIC	15,432		15,255		15,100		13,982	
BIC	15,406		15,227		15,074		13,956	

Note. Unstandardized estimates are displayed. AIC = Akaike Information Criterion. BIC = Bayesian Information Criterion. AIC and BIC statistics assess model fit relative to degrees of freedom, where smaller values indicate a better-fitting model.

* $p < .05$. ** $p < .01$.

Discussion

To our knowledge, this is the first study to explicitly bridge the humorous coping and emotion regulation literatures by directly contrasting humorous coping and serious reappraisals in an experimental paradigm. Our findings indicate that humorous coping was more difficult and less often successful than serious reappraisal. However, when successful, it was the more effective strategy to down-regulate negative and up-regulate positive emotions in the short-term, and to down-regulate negative emotions in the long-term.

Our finding that humorous coping led to greater increases in positive emotions and greater decreases in negative emotions in the short-term might be due to several factors. One is the dramatic perspective change associated with humor (see also Samson & Gross, 2014). More dramatic perspective change on a negative event might help to create greater emotional distance (see also Keltner & Bonnano, 1997) and result in more effective emotion regulation. In addition, the “out of the box” thinking associated with humor might lead to a stronger increase in positive emotions. This might be facilitated by the absurd elements and incongruity-resolution processes inherent to humor (e.g., Suls, 1972).

Second, greater cognitive effort may have been required to generate the humorous coping response than the serious reappraisal. If so, it's possible that the greater effort might have been associated with greater distraction from the negative content of the stimulus than simply generating a serious reappraisal, in line with previous research (e.g., Strick et al., 2009a).

Third, the positive emotions elicited by a joke may “undo” negative emotions (e.g., Fredrickson, 1998; Fredrickson & Levenson, 1998; Fredrickson et al., 2000). Besides the positive emotions directly elicited by the humorous coping, additional positive emotions might even have been elicited by the success of coming up with a humorous statement. Previous studies have shown that there may be significant differences between reappraisals that aim to reduce or increase one emotion (quantitative change) in contrast to reappraisals that replace an emotion with another one (qualitative change; see McRae, Ciesielski, & Gross, 2012).

In order to clarify the underlying mechanisms that are decisive for the stronger regulatory effect of humorous coping vs. serious reappraisal, future studies might benefit from analyzing additional emotion reappraisal strategies that are either matched to humorous coping in cognitive effort/difficulty and/or the amount of positive emotions that are elicited. This might help to disentangle the consequences of cognitive processes (e.g., humorous perspective change) and positive affect (e.g., mirth) on regulating emotions. A positive reappraisal condition is required that is equally positive and difficult, without being humorous, in order to understand the unique effects of the humorous component. Previous research has already examined different types of reappraisals which may be good candidates, such as detached and positive reappraisal (Shiota & Levenson, 2012).

Interestingly, we found stronger long-term effects of humorous coping in contrast to serious reappraisal only in negative, but not positive emotions. This speaks for a rather transient effect of humor on positive emotions (i.e., a humorous remark is able to lift positive emotions in the moment itself), however, after some time passed, this joke does not evoke the same amount of positive emotions. For the success of dealing with negative stimuli, the decrease of negative emotions in the long term might be more crucial than the increase of positive emotions, which is in line with various findings of the healing effect of humor in dire life circumstances (e.g., Downe, 1999; Ford & Spaulding, 1973). This is the first study that observed more beneficial long-term effects on down-regulating negative emotions of humorous coping in contrast to serious reappraisal. However, further research needs to replicate these findings and to examine more closely the underlying mechanisms that lead to stronger long-term effects of humorous copings. For example, humorous information may be better recalled than non-humorous information (see Strick, Holland, van Baaren, & van Knippenberg, 2009b), which might explain longer-term differential effects.

Our study showed that generating humorous reappraisals was more difficult, and that people were less likely to succeed to regulate compared to serious reappraisal. This result has potential implications on the use of humor to face adverse events in daily life. For instance, individuals may know implicitly that humorous coping is more effortful and difficult than serious reappraisals and would not even attempt to generate humorous reappraisals – particularly if cognitive resources are limited. If this were the case, it is likely that individuals would select the strategy that is easier to implement, regardless of any benefits associated with using humor. Individual differences, particularly related to one's sense of humor, may substantially impact one's approach to facing life's adversities. In addition, future studies could examine the relationship of implicit beliefs regarding the effectiveness of humorous coping versus serious reappraisal and whether this association is indicative of how people attempt to use humor as a regulation strategy in dealing with negative emotions on a daily basis.

Several limitations of this study should be noted. First, this study focused on self-reported emotion experience. Future studies should include more objective measures (autonomic and neural correlates) to better understand humor as an emotion regulation strategy, as well as the underlying cognitive mechanisms and resulting emotional effects. Second, the current study did not include a non-humorous positive condition. Future studies should do this to assess whether the effect of humorous coping is due to the positive emotion introduced in this condition or due to the particular cognitive processes inherent to humor. Third, the present study considered one particular context, namely viewing negative pictures. Future research should analyze the impact of situational and contextual characteristics on the appropriateness and effectiveness of humorous coping given the possibility that humorous coping by itself may be an inadequate response in certain situations. It is likely that the availability of alternative regulation strategies (e.g., problem solving) impacts the choice to use humor to down-regulate emotions. Fourth, the present study did not manipulate cognitive resource availability. Future research should also examine the effects of cognitive resource availability at a given time point, since humorous coping appears to be more difficult. This will help to formulate implications for the successful implementation of humor as emotion regulation strategy in daily life and treatment (see also Franzini, 2001; Kubie, 1971). Finally, the present study focused on only one particular form of humor. In a recent study, we have found that not only benevolent but also malevolent forms of humorous copings can be effective (although to a limited extent, Samson & Gross, 2012). Other types of humor (e.g., telling pre-fabricated jokes, teasing) and their adaptive functions should also be examined to better understand the efficacy of different types of humor to deal with negative emotions in daily life.

Notes

i) This interaction term was required to test the overall condition x block interaction. Since the 'watch negative' trials do not differ between the humor and serious blocks, this effect should be non-significant.

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Competing Interests

The authors have declared that no competing interests exist.

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