

The Functions of Worry in Uncontrollable Situations – Perceived Effects of Worry and the Feeling of Being in Control

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Abstract

The current study investigated the correspondence between positive beliefs about worry and the actual functions of worry, as they are perceived on the spot, in a stressful, uncontrollable circumstance. Participants ($N = 79$) were immersed in a stressful and uncontrollable situation, that of an impromptu speech. Half of the participants were randomly assigned into the experimental condition and were instructed to worry in relation to the forthcoming presentation, while the others were allocated to a mental distraction task condition. Results showed that, while worrying, individuals did not report the expected effects of worry and did not obtain a higher sense of control. Therefore, even if individuals generally think that worry is beneficial, they do not experience such benefits while worrying.

Keywords

worry; positive beliefs about worry; functions of worry; sense of control.

Worry is a pervasive human experience, and it has generally been defined as “a chain of thoughts and images, negatively affect-laden and relatively uncontrollable” and as “an attempt to engage in mental problem-solving” (Borkovec, Robinson, Pruzinsky, & Depree, 1983, p. 10). Normal worry is mild, transient, and is experienced by the majority of individuals in various circumstances (Ruscio, 2002). On the other hand, when uncontrollable and unrealistic, worry can become pathological, leading to maladaptive consequences, like increased negative affect, interference with cognitive functions

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(Borkovec, Ray, & Stober, 1998), or impeding the emotional processing of the anxiety reaction (Borkovec, 1994).

Regardless of the normal or pathological nature of the worry process, people often perceive it to be functional. More specifically, worry is believed to increase motivation for problem-solving, help the individual to prepare for, or prevent bad events from happening, prepare for the worst, superstitiously diminish the likelihood of negative events happening, and distract one's attention from even more emotional topics (Borkovec & Roemer, 1995; Freeston, Rheaume, Letarte, Dugas, & Ladouceur, 1994). However, the fact that people hold these positive beliefs about worry does not mean that worry actually serves those functions, as the phenomenological account and the real psychological effects are often in disagreement (e.g., Nisbett & Wilson, 1977).

When investigating the functions of worry, the degree of controllability/uncontrollability of the stressful situation which constitutes the focus of the worry episode is a dimension worth considering. Research has shown that people believe worry to be helpful and constructive especially when the stressor is a controllable one (Davey, 1994). That is, when facing a problematic, but controllable situation, individuals are more likely to perceive their worrying as a helpful problem-solving strategy than in the case of stressful but uncontrollable events. Indeed, it logically follows that worry as a problem solving strategy can only have beneficial effects in controllable situations, when someone can actually problem-solve.

Still, not all of the perceived functions of worry are related to problem solving. As previously mentioned, people also believe that worrying can itself prevent the occurrence of negative events, that it can prevent disappointment, or that worrying constitutes a positive personality trait (Francis & Dugas, 2004; Freeston et al., 1994). Such perceived benefits of worrying can be perceived in both controllable and uncontrollable situations, because worry could trigger these effects even if no actual benefit can objectively occur (Borkovec et al., 2004). Also, even if no objective control is possible, worry can be used as an emotion regulation strategy, in the sense that it diminishes emotional reactions (Borkovec et al., 2004; Mennin, Heimberg, Turk, & Fresco, 2002), or it prepares the individual for possible negative outcomes, by preventing disappointment (Borkovec & Roemer, 1995; Freeston et al., 1994), or escalations in anxiety (Newman & Llera, 2011).

Worry could therefore bring some benefits in uncontrollable situations. However, it is not yet clear if worry indeed serves these functions, and if they are perceived online, as the individual worries, offering immediate relief, or they arise only as post-hoc rationalizations (Borkovec et al., 2004). Clarifying whether these effects occur on the spot, providing immediate comfort, or they only arise afterwards, as retrospective rationalizations, would help explain the mechanisms responsible for triggering and maintaining worry. If the functions of worry arise immediately, as proximal consequences of worrisome thoughts, it would mean that worry indeed “serves” its purpose and that worrying implies experiencing effects such as: feeling more in control, believing that negative events are less likely to happen, and so on. If, on the other hand, these functions of worry do not occur on the spot, but are only inferred later on the basis of positive and negative reinforcement, it could mean that worry does not actually serve its supposed functions. In this sense, people would believe that worry is helpful, but they would not experience temporary relief while worrying.

Some authors mention that worry is considered to be beneficial on account of the illusion of control it provides (Borkovec & Roemer, 1995; Craske, 1999; Freeston et al., 1994). However, this possibility has not been thoroughly explored. Recent studies using the illusion of control paradigm (e.g., Thompson et al., 2007; Reuven-Magril, Dar, & Liberman, 2008) have conceptualized it as an online feeling of control, occurring while the individual performs certain repetitive actions (e.g., pressing a key). In this sense, if worry triggers an illusion of control, it should be present *while* the individual is engaged in the worry episode. So far, one recent study (Stapinski, Abbott, & Rapee, 2010) found that worry dampens perceptions of controllability when compared to relaxation or imaginal processing of the anxiety trigger, but in this case, control was equated with the ability to cope with a future negative outcome (i.e., having cancer) whereas the sense of control can be experienced in other ways too. Also, it could be that worrying does not elicit an online sense of control in all individuals, but only in those who previously endorse a higher level of positive beliefs about worry.

Knowing whether the functions of worry and the illusion of control are perceived online could also point more clearly to the focus of future interventions. More specifically, we would know whether it is enough to target the positive beliefs about worry held by an individual, or we should also address the tendency to experience these potential benefits during worry episodes.

Overview of the Present Research

The aim of the current study was to investigate the online effects of worry in a stressful, uncontrollable situation. We therefore hypothesized that: 1) Participants with a higher level of positive beliefs about worry will experience a higher sense of control when worrying than when engaged in another mental activity and 2) Participants with a higher level of positive beliefs about worry will experience the effects of worrying to a higher extent.

Method

Participants

The participants ($N = 79$) were second-year psychology students and took part in the experiment in exchange for course credits. Their age ranged from 19 to 35 ($M = 20.62$, $SD = 2.69$), 65 were female (82.27 %) and 14 were male (17.72 %). The participants were recruited by posting an ad with the description of the experiment on their joined discussion group, and they signed in by filling in their names in the available time slots.

Design and Procedure

In order to test our hypotheses, we used a univariate between-groups design (worry vs. distraction mental task). After signing the informed consent, the participants were randomly assigned to one of the two experimental conditions. Because the focus of investigation was on perceived functions of worry in stressful, uncontrollable situations, we immersed the participants in both conditions in the same stressful, uncontrollable situation, that of an impromptu speech. Participants were told they were supposed to deliver a speech in front of a camera on a topic which was to be known just before beginning their presentations. Not knowing the theme of the speech, they could not prepare or objectively control the outcome.

Participants were told that their speech was to be evaluated and marked by several members of the department and that performance in this type of tasks is indicative of creativity and other general cognitive abilities. After-

wards, participants in the worry condition were instructed to worry for the next five minutes as intensely as they can about the things that can go wrong during the speech, following the procedure developed by McLaughlin et al. (2007). After each minute they heard a sound and they were instructed to write down the content of their thought. Participants in the mental task—distraction-- condition were instructed to think, for the next five minutes, as intensely as they can, of as many things as they know about five countries (e.g., England, Italy, Sweden, Egypt and Mexico), from five different domains (geography, history, arts and literature, music and film, and sports). After each minute, they heard a sound and they were instructed to write down the content of their thought. The instructions were identical to those received in the worry condition, apart from the focus on worry about the presentation (the worry condition) versus the information about the five countries (the mental task condition). We decided to use a mental distraction task as a control condition firstly because we wanted to prevent the participants from worrying spontaneously, and secondly because we wanted to distinguish worry from another perseverative mental activity, namely that of thinking about something else.

Measures

Manipulation check

Task-specific worry was measured by using five items adapted from the Penn State Worry Questionnaire (Meyer, Miller, Metzger, & Borkovec, 1990). The items were modified as to refer to the specific context of worrying about the future presentation, and they have been previously used in a similar form in experimental research (Buhr & Dugas, 2009).

Dependent measures

Visual Analogue Scales (VAS) were used to measure anxiety, involvement in the task, perceived effects of worry, and the sense of control. Participants were instructed to indicate, by marking a cross on 10 cm VAS scales, the degree of anxiety, involvement in the task, their sense of control over the situa-

tion, and the perceived effects of worry. With respects to the effects of worry, the items were constructed as to present them (following the Why Worry Questionnaire, WW II; Holowka, Dugas, Francis, & Laugesen, 2000), without being directly portrayed as consequences of worry. For example, the item referring to the belief that by worrying, the probability of a negative outcome diminishes, was phrased as follows: "Please mark a cross (X) along the scale to indicate the probability for the speech you are about to deliver to go wrong". If worrying is believed to diminish the probability of a negative outcome, we would expect that participants in the worry condition will indicate a lower probability for the speech to go wrong. All the items used to measure perceived functions/effects of worry and sense of control are presented in the Appendix.

Trait measures

Penn State Worry Questionnaire (PSWQ; Meyer et al., 1990) is a 16-item instrument designed to measure trait worry in terms of frequency and controllability. The items are answered on a 5-point Likert scale ranging from 1 (*not at all typical*) to 5 (*very typical*). The scale has shown good internal consistency, with alpha values ranging from .86 to .93 in both clinical samples and normal population (Molina & Borkovec, 1994). In terms of validity, PSWQ scores are significantly higher for individuals diagnosed with GAD than for individuals meeting only some of the criteria (Meyer et al., 1990), or for individuals diagnosed with other anxiety disorders (Brown, Antony, & Barlow, 1992).

Why Worry? (WW II, Holowka et al., 2000) is a 20-item measure addressing positive beliefs about worry. The instrument comprises items related to beliefs such as: worry prevents negative outcomes from happening, it offers distraction from more upsetting topics, it has positive effects like finding better solutions, increasing motivation, or diminishing disappointment, and worry constitutes a sign of responsibility in a person. The items are responded on a 5-point Likert scale (1 – *not at all true*; 5 – *completely true*). The scale has shown adequate test-retest reliability ($r = .71$, Dugas, Freeston, & Ladouceur, 1995) and criterion-related, convergent, and discriminative validity (Freeston et al., 1994).

Results

Manipulation check

In order to check whether the worry induction had the intended effects, we compared the levels of worry, anxiety, and involvement in the task for the two conditions. The participants in the worry conditions reported higher levels of worrying, $M_{\text{experimental}} = 18.60$, $SD = 3.62$, $M_{\text{control}} = 16.02$, $SD = 3.50$, $t(74) = 3.13$, $p = .001$, $d = .35$, higher levels of anxiety (measured with the VAS scale), $M_{\text{experimental}} = 49.65$, $SD = 23.97$; $M_{\text{control}} = 38.66$, $SD = 22.67$, $t(77) = 2.09$, $p = .02$, $d = .23$, but also higher levels of involvement in the task, $M_{\text{experimental}} = 65.17$, $SD = 16.94$, $M_{\text{control}} = 52.53$, $SD = 19.39$, $t(77) = 3.08$, $p = .003$, $d = .35$, meaning that they were immersed in the task at a higher degree compared to participants in the control condition. Therefore, the degree of involvement in the task was used as a covariate in all subsequent analyses investigating the effect of the experimental condition.

Worrying and the Sense of Control

To test whether worrying elicits a subjective feeling of control in participants with high levels of positive beliefs about worry, we tested the interaction between the experimental condition (worry vs. control) X positive beliefs about worry (high level of positive beliefs vs. low level of positive beliefs), with the level of perceived control as the dependent variable. In order to distinguish between high and low levels of positive beliefs, we classified the participants as high or low on positive worry beliefs based on the mean obtained at the WW II (Holowka et al., 2000). We found no significant effect of the interaction as was expected, $F(1,68) = .004$, $p > .05$, meaning that participants with higher levels of positive beliefs do not experience a higher sense of control in the worry condition, and neither in the control condition, for that matter. There was a significant main effect of positive beliefs about worry, but in the opposite direction than the predicted one, $F(1,68) = 4.30$, $p = .04$, $d = .50$. That is, participants with high levels of positive beliefs about worry have a diminished sense of control compared to the participants with low levels of positive beliefs.

Given the fact that the worry levels were not very different between the two conditions, we repeated the analysis using the mean of state, situational worry for distinguishing between participants with high and low worry levels. The main effects of situational worry (high vs. low) and positive beliefs (high vs. low) were marginally significant, $F(1,68) = 3.57, p = .063$, and $F(1,69) = 3.03, p = .086$, in the sense that high levels of worry and positive beliefs predicted a decreased sense of control, while the interaction effect was still not significant, $F(1,69) = .99, p > .05$.

Overall, the sense of control was negatively associated with trait worry, $r(78) = -.512, p < .001$, situational worry, $r(75) = -.318, p = .005$, and positive beliefs about worry, $r(72) = -.231, p = .049$.

Worrying and the Perceived Effects of Worry

If the effects of worry occur on the spot, offering immediate relief, we would expect that, for those participants with high levels of positive beliefs, the effects of worry are perceived online, as the individual is engaged in the worry bout. Therefore, we tested this hypothesis using a two-way ANOVA procedure with the experimental condition (worry vs. control) and the levels of positive beliefs about worry (e.g., high level of positive beliefs vs. low level of positive beliefs) as independent variables, and their interaction, as a proof of the “online” nature of perceived functions of worry. We performed the analyses for the three categories of positive beliefs about worry that apply in uncontrollable situations, namely (1) superstition (worrying can prevent undesired outcomes from happening), (2) anticipatory emotion regulation (worrying will make one less disappointed in case the undesired event occurs), and (3) worry as a sign of responsibility. Based on their means obtained on the corresponding WW II (Holowka et al., 2000) subscales, we classified the participants as either low or high on these particular positive beliefs about worry and then performed the aforementioned analyses. However, we found no significant main or interaction effects, for any of the three perceived functions of worry, meaning that people who generally endorse positive beliefs about worry do not experience such benefits as they worry.

When repeating the analyses using the level of situational worry instead of experimental condition, only the main effects of worry level (high vs. low) were significant, but in the opposite direction than predicted. So, partici-

pants with a higher level of situational worry believed that the speech was more likely to go wrong, $F(1, 74) = 5.38, p = .023$, and that they were more likely to be disappointed if that happened, $F(1, 72) = 7.11, p = .010$.

Discussion and Conclusion

The aim of the study was to investigate the perceived effects of worry in a stressful, uncontrollable situation, taking other important, trait variables into account (i.e., general positive beliefs about worry, trait worry).

Worrying and the Sense of Control

The results indicate that, contrary to our expectations, worry does not elicit a subjective feeling of being in control. On the contrary, although the sense of control does not differ between the experimental and the control condition, the degree of worrying (situational and also trait worry) is inversely related to the sense of control, showing that the more one worries, the less control he/she will experience. These results are similar to other findings in the literature (Stapinski et al., 2010), indicating that worrying dampens perceptions of controllability. If worry is associated with an increased sense of control, it is more likely that this feeling of control is experienced either as a post-hoc rationalization, not as a genuine, online *feeling* of control, or it would appear more evident in a longer time frame, when the individual can worry in advance of a threatening event. Also, it could be that worry favours a sense of control only in situations which permit a certain degree of control (e.g., preparing for an exam). Additionally, worrying can be a consequence of the low sense of control, not necessarily a trigger. Given the fact that high worriers have elevated levels of intolerance of uncertainty (e.g., Buhr & Dugas, 2002; Buhr & Dugas, 2006; Dugas, Gosselin, & Ladouceur, 2001), a diminished sense of control could trigger worry.

Worrying and the Perceived Effects of Worry

Also, contrary to what we expected, the supposed effects of worry in uncontrollable situations do not seem to be present, suggesting that positive beliefs about worry only emerge afterwards, as post-hoc rationalizations. That is, even if a person holds the belief that worry decreases the probability for an outcome to go wrong, he/she will not necessarily perceived this probability to be smaller while worrying. Similarly, while worrying, he/she will not perceive himself/herself as a more responsible person, and will not express the belief that he/she will be less disappointed in case the speech goes wrong, even if such beliefs are generally present. In other words, worry will not offer immediate help or relief, even if it is generally perceived as helpful. These results suggest that positive beliefs about worry emerge rather as post-hoc rationalizations, as some authors have suggested (Borkovec et al., 2004), or as triggers of worry episodes (Dugas, Gagnon, Ladouceur, & Freeston, 1998), and not as immediate consequences. However, in this study, the control condition consisted of another mental task, and the differences between the two conditions in terms of worry, although significant, might have been insufficient to highlight an effect of worry on different outcomes.

Also, the present findings may not apply to many real life situations when individuals worry some time in advance about threatening events (e.g., two weeks before an important exam), and the study was not designed to address such cases, as its aim was to assess the *immediate* perceived effects of worry. In this sense, the fact that participants with high levels of positive beliefs about worry did not perceive these functions on the spot remains an interesting finding.

All in all, the results of the current study indicate that, in uncontrollable situations, worrying is associated with a diminished sense of control and that even if people generally hold positive beliefs about the functions of worry, the supposed effects of worry will not emerge on the spot, offering immediate relief. At least in immediate uncontrollable circumstances, worry does not appear to serve the functions it is believed to serve. In order to further clarify these matters, future studies should combine the manipulation of worry with repeated measures designs as to assess the changes in perceived functions of worry in response to the worry episode.

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Stefan, S.: study design, conducting the study, analyses and results interpretation, writing the manuscript.

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