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Will you thrive under pressure or burn out? Linking anxiety motivation and emotional exhaustion

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Can individual differences in the tendency to use anxiety as a source of motivation explain emotional exhaustion? We examined the effects of using anxiety as a source of energy or as a source of information (viewed here as two forms of anxiety motivation) on emotional exhaustion. In Study 1, the use of anxiety as a source of energy predicted decreased emotional exhaustion one year later. Moreover, both forms of anxiety motivation buffered people from the detrimental effects of trait anxiety on later emotional exhaustion. In Study 2, an experiment, participants who were instructed to use anxiety as a source of energy reported lower emotional exhaustion following a stressful task, compared to those instructed to focus on the task or to simply do their best. These findings suggest that using anxiety as a source of motivation may protect people against emotional exhaustion.

Keywords: Anxiety; Burnout; Motivation; Emotional exhaustion; Energy.

Burnout, a psychological syndrome resulting from prolonged response to chronic workplace stressors (Maslach, Schaufeli, & Leiter, 2001), is a serious and growing problem, as people work increasingly longer hours and experience greater demands and pressures at work (Lovelace, Manz, & Alves, 2007). Burnout has been linked to a range of negative consequences including lower productivity, withdrawal and decreased employee well-being (Friesen & Sarros, 1989; Maslach et al., 2001). It is widely thought to encompass

three dimensions that unfold in a developmental sequence: from emotional exhaustion, to depersonalisation and then to diminished accomplishment (Cordes & Dougherty, 1993; Maslach et al., 2001). In order to prevent burnout, it is, therefore, crucial to identify the factors that predict and protect against emotional exhaustion, which entails feeling overextended and depleted of one's emotional and physical resources (Maslach & Leiter, 2008). This was a primary goal of the present research.

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The effect of work stressors on burnout is thought to be mediated by negative emotions (e.g., Gallo & Matthews, 1999; Kiecolt-Glaser, McGuire, Robles, & Glaser, 2002; Van Eck, Berkhof, Nicolson, & Sulon, 1996). The chronic experience of negative emotions, and difficulties regulating these, may exhaust cognitive and emotional resources and have been found to be major risk factors for emotional exhaustion (Chang, 2009; Hsieh, Jin, & Guy, 2011; Spector & Goh, 2001). Within the spectrum of negative emotions, the emotion most commonly associated with stress is anxiety (Feldman et al., 1999; Lazarus, 1999). Trait anxiety, reflecting individual differences in the tendency to experience anxiety repeatedly across situations, is associated with heightened reactivity to stressors and predisposes individuals to emotional exhaustion (Richardsen, Burke, & Leiter, 1992). Therefore, we investigated trait anxiety as a predictor of emotional exhaustion.

Research on anxiety has typically emphasised its distressing and debilitating nature (e.g., Buhr & Dugas, 2006; Lazarus, 1993). Nevertheless, some research in sports psychology suggests that anxiety can be perceived as either facilitative or debilitating to performance in competitive settings (e.g., Jones & Uphill, 2004). For example, people who perceive anxiety as facilitative may outperform themselves under stress, whereas others who experience anxiety as debilitating may not perform to their full potential in stressful circumstances (Swain & Jones, 1996). Most of this research focused on symptoms of cognitive or somatic anxiety, linking these to performance in competitive sports. In this body of research, anxiety is commonly viewed as a form of diffuse, low-intensity fear, triggered by apprehension about ongoing or future challenges, which often lasts longer than a typically short-lived fear reaction.

In the present research, we sought to extend this body of work in four ways. First, we examined perceptions that the experience of anxiety enhances self-motivation, as a source of both energy and information. This motivational angle and sub-dimensions of motivation were not investigated in prior research in sports psychology. Second, we examined relationships between these perceptions and emotional exhaustion (rather than

performance). Third, we examined the moderating role of anxiety motivation in the relationship between trait anxiety and emotional exhaustion. Fourth, we studied these relationships in contexts other than sports, such as the workplace.

Using anxiety as a source of motivation

While some individuals experience anxiety as debilitating, and may burn out when faced with repeated anxiety-arousing difficulties at work, others seem to thrive in similarly adverse circumstances. The latter may be driven to work harder when they experience anxiety in the face of difficult challenges. They may feel energised by the experience of stress and anxiety and effectively channel this energy into productive effort. Although this argument may seem to go against the idea that anxiety is unpleasant, it is consistent with functional accounts of emotion, which propose that both positive and negative emotions serve adaptive functions. In particular, emotions may signal useful information and energise adaptive responses.

With regard to the information function, negative emotions such as fear or anxiety signal the presence of problems or threats (Frijda, 1988). Viewed as part of a self-regulatory feedback system, these emotions signal a discrepancy between one's desired and actual pace of progress towards a goal (Carver & Scheier, 2011). In turn, this discrepancy may lead people to exert greater effort to reach their goal (Clore, Schwarz, & Conway, 1994; Martin, Ward, Achée, & Wyer, 1993). In line with the feeling-as-information hypothesis (Schwarz, 1990; Schwarz & Clore, 1983), negative emotions are found to lower satisfaction with outcomes and raise performance standards. They can induce self-critical thinking and help people to learn from their mistakes (Baumeister, Vohs, DeWall, & Zhang, 2007). They prompt people to analyse information carefully, pay attention to details, attend to discrepancies (Schwarz & Bless, 1991) and adopt stringent standards for coping with threats (Schwarz, Bless, & Bohner, 1991).

With regard to the energy function, negative emotions such as fear or anxiety can energise

action because they activate a fight or flight stress response that induces physiological arousal (e.g., Cannon, 1929; Izard & Ackerman, 2000; Marks & Nesse, 1994; Martens, Burton, Vealey, Bump, & Smith, 1990). This arousal generates physical and mental energy, facilitating performance (Buck, 1985; Yerkes & Dodson, 1908) and preventing the depletion of energy levels that emotional exhaustion represents.

According to the theory of emotional intelligence, there are individual differences in the ability to use emotions to motivate oneself (Mayer, Roberts, & Barsade, 2008). Building upon the theory and research discussed above, we propose that there are individual differences in the way that people experience anxiety and use it to motivate themselves and energise goal achievement. Furthermore, we argue that individuals who experience and use anxiety as a source of information and energy will be less prone to suffer from emotional exhaustion. But why might individuals differ in the way that they experience anxiety and use it for self-motivation?

First, emotional reactions are driven by subjective appraisals (Lazarus, 1999). There are individual differences in the extent to which people tend to view obstacles as insurmountable threats or as challenges to be overcome (Lazarus, 1999). In turn, different patterns of appraisal are thought to trigger different emotional reactions—*anxiety* versus *excitement*, for example. We argue that these patterns of appraisal influence not only the extent to which people experience anxiety but also the way in which they experience it. By automatically deemphasising the catastrophic consequences of perceived threats and/or amplifying the activating function of anxiety, individuals may experience anxiety as less aversive and more energising. In doing so, they are effectively shifting the subjective experience of anxiety in the direction of excitement on the emotional circumplex.

Second, and related to the way in which they experience anxiety, people also hold different beliefs about the utility of anxiety. As suggested by research on competitive anxiety in sports, some people believe that anxiety helps them to do well, whereas others believe that anxiety cripples them.

People generally tend to seek pleasure and avoid pain, and anxiety is usually viewed as a negative or unpleasant emotion. Nonetheless, research on instrumental emotion regulation suggests that people often choose to experience and amplify negative emotions that will help them to reach instrumental goals (Tamir, 2005; Tamir & Ford, 2012). For example, they might choose to experience anxiety when they have to prepare themselves for a task that requires vigilance. Thus, people may be consciously aware of the “functional utility” of negative emotions (Eysenck & Calvo, 1992; Parrott, 2002), or otherwise reveal an implicit understanding of the potential benefits of negative emotions. Beliefs in the utility of anxiety also colour the way in which this emotion is experienced. Individuals who believe that anxiety prompts and energises them to work harder are likely to experience anxiety as less aversive. Thus, patterns of emotional experience and beliefs about the utility of emotion develop in a cycle of reciprocal influence.

Third, whereas some people believe that emotions can be easily controlled, others believe they have less control over their emotions (Tamir, John, Srivastava, & Gross, 2007). Secondary appraisals regarding one’s capacity to control or cope with a threat can influence one’s emotional response (e.g., the intensity of anxiety experienced). Similarly, beliefs about one’s ability to control or cope with this emotional response may influence the meta-mood experience (Salovey, Mayer, Goldman, Turvey, & Palfai, 1995)—i.e., the way that people think and feel about their affective experience. This is likely to colour the overall experience of anxiety and influence people’s tendency to use anxiety as a source of motivation.

Fourth, and finally, there may be individual differences in the extent to which people experience the arousal associated with negative emotions as intrinsically rewarding or pleasant, independently of their functional utility. Circumplex models map affective experience along two dimensions, valence and arousal, and these dimensions are generally thought to be independent (Russell, 1980). However, arousal may be rewarding in itself. Watching horror movies or going on roller-coaster rides can

induce a mix of fear and excitement, and some individuals enjoy this experience of fear-laden activation more than others. In sum, patterns of appraisal, beliefs about the utility and controllability of emotional responses, as well as the subjective experience of arousal, are likely to colour the full experience of anxiety and influence people's tendency and ability to use anxiety as a source of motivation.

Building on the theory and research outlined above, we propose that people can experience anxiety not only as facilitating performance, as the sports psychology literature has suggested, but also as a source of motivation. We use the expression *anxiety motivation* to refer to this combined experience. In the present research, we examined two key dimensions of the functional and motivational value of anxiety: using anxiety as a source of both information and energy to activate and energise goal pursuit.

Overview and hypotheses

We expected both the information and the energy functions of anxiety motivation to protect people against emotional exhaustion, for three reasons. First, both facilitate goal achievement and thereby help replenish personal and emotional resources. Second, individuals who view anxiety as a source of information and energy are more likely to accept it for its functional value rather than attempt to control or suppress it, which tends to deplete cognitive and emotional resources (Baumeister, Faber, & Wallace, 1999), and contribute to emotional exhaustion. Third, using anxiety as a source of energy is likely to replenish emotional resources and thus prevent emotional exhaustion directly. Therefore, we hypothesised that both using anxiety as a source of information and using anxiety as a source of energy would be negatively related to emotional exhaustion (Hypothesis 1).

We expected using anxiety as a source of information to be less strongly related to emotional exhaustion than using anxiety as a source of energy, for two reasons. One is that the direct replenishment of emotional resources applies to using anxiety as a source of energy and not to

using anxiety as a source of information. The other is that using anxiety as a source of information, indicating that one should work harder, might lead people to push themselves and work too hard, and eventually this could become exhausting. This potentially detrimental effect might dampen the otherwise beneficial effects of using anxiety as a source of information.

Trait anxiety is usually associated with vulnerability to emotional exhaustion (Richardson et al., 1992). However, we propose that the relationship between trait anxiety and emotional exhaustion depends on the extent to which people perceive anxiety as useful and energising, versus detrimental and draining. Individuals who use anxiety as a source of information and energy are likely to experience less negative effects of trait anxiety than those who do not perceive anxiety to be useful and experience it as draining their energy. The latter are likely to attempt to control or suppress anxiety deliberately, further depleting cognitive and emotional resources. Therefore we hypothesised that both using anxiety as a source of information and using anxiety as a source of energy moderate the relationship between trait anxiety and emotional exhaustion, such that this relationship becomes less positive for individuals scoring high versus low on both dimensions of anxiety motivation (Hypothesis 2). Here, we did not expect different effects for these two dimensions.

In other words, we hypothesised both main effects of using anxiety information and energy on emotional exhaustion and interaction effects with trait anxiety. We expected main effects because practically everyone has to deal with stressors and anxiety, and the way people experience anxiety influences how emotionally exhausted they feel. We expected interaction effects because the way people deal with anxiety might be more important for individuals who are predisposed to experience anxiety chronically and intensely.

In order to test these hypotheses, we conducted two studies. The first, a longitudinal field study, examined the relationship between anxiety motivation and emotional exhaustion over a one-year time frame. The second, an experimental study, manipulated the using energy dimension of

anxiety motivation through verbal instructions and examined the effects of this manipulation on emotional exhaustion following a stressful task (focusing on Hypothesis 1).

STUDY 1

Study 1 examined the relationship between using anxiety as a source of motivation and change in emotional exhaustion over a 12-month period, among teachers and medical doctors. We focused on these two caregiving professions because they reveal relatively high levels of stress and burnout (Kahill, 1988; Maslach, 1982; Näring, Briët, & Brouwers, 2006; Zammuner, Lotto, & Galli, 2002), partly due to an effort–reward imbalance (e.g., Van Vegchel, De Jonge, Bosma, & Schaufeli, 2005).

In order to study the possible buffering effect of anxiety motivation on emotional exhaustion, we ran a longitudinal study, measuring trait anxiety and anxiety motivation at Moment 1 and emotional exhaustion one year later. This way, we could see how trait variables are related to outcome variables at a later time point.

Method

Procedure and participants

We used a snowball sampling strategy to recruit participants. We contacted five clinics and seven schools across Germany directly. In addition, we contacted more than 50 doctors and teachers across Germany by email, inviting these people to participate in our study and to forward our invitation to colleagues in the same profession. Doctors and teachers were invited to participate voluntarily and were assured that all information provided would be treated confidentially. We collected data at two time points, 12 months apart. At the second time point, participants were contacted again by email or post, depending on the information they had provided at Time 1. The questionnaires administered at both time points included the same scales. The two translators were native speakers of English and German.

Of the 138 teachers and doctors who provided some data for the present and other research purposes (mean age 44, $SD = 13$; 60% female), only 113 provided data on the key variables reported in this study, at the first time point (due to missing data). Of these, 86 also provided data on the same key variables 12 months later (mean age 46, $SD = 12$; 60% female). Out of these 86 participants, 36% were doctors (from various disciplines) and 64% were teachers. The rate of missing data and attrition observed (38%) is not uncommon for longitudinal studies with a 12-month follow-up (see Gustavson, von Soest, Karevold, & Røysamb, 2012). In fact, it should probably be expected considering that we collected data from busy professions who received no financial incentive for continued participation.

All data exclusions, manipulations and measures used to test the hypotheses examined here are reported in this manuscript. Additional data were collected from the same participants for other research purposes.

Measures

Descriptive statistics and reliabilities for the key measures of interest are reported in Table 1.

Anxiety motivation. The tendencies to experience and use anxiety as a source of information and energy (henceforth, also designated anxiety information and anxiety energy) were measured using two scales developed for this research, consisting of three and four items, respectively. Items (reported in Table 2) were generated in English and then discussed and revised by the authors, incorporating feedback from more than 10 other researchers to ensure clarity and face validity. The response scale ranged from 1 (*totally disagree*) to 5 (*totally agree*). Preliminary evidence of scale validity was obtained from a sample of 194 participants (27% university students, 70% workers from different professions and 3% other; 51% male, 49% female; mean age 33, $SD = 11$). For this purpose, the scale was translated into German and back-translated by a different person to ensure accuracy. Exploratory factor analysis using oblique

Table 1. *Descriptive statistics and correlations (Study 1)*

	<i>M</i>	<i>SD</i>	1	2	3	4
1. Anxiety motivation information (T1)	2.97	1.14	(.93)			
2. Anxiety motivation energy (T1)	2.96	1.28	.42**	(.94)		
3. Trait anxiety (T1)	2.40	.91	.12	-.37**	(.95)	
4. Emotional exhaustion (T2)	2.87	1.46	-.23*	-.49**	.34**	(.92)

Note: *N* = 86. Reliabilities (Cronbach's alpha) appear in parentheses along the diagonal.

p* < .05; *p* < .01.

rotation yielded two distinct factors explaining 49% and 32% of the variance and revealing simple structure (primary loadings > .80, cross-loadings < .10). Internal consistencies were high ($\alpha = .91$ for both scales). Anxiety information and energy revealed meaningfully different patterns of correlation with extrinsic and intrinsic motivation. Anxiety information correlated positively with extrinsic motivation ($r = .29$, $p < .05$), reflecting self-imposed pressure to work harder to achieve one's goals, but was unrelated to intrinsic motivation (.14, *ns*). In contrast, anxiety energy correlated negatively with extrinsic motivation (.21, $p < .01$) and positively with intrinsic motivation (.26, $p < .01$), reflecting an intrinsically rewarding experience of energy and activation. The fact that these correlations were modest suggests that anxiety motivation is conceptually distinct from these existing motivation constructs.

Emotional exhaustion. Emotional exhaustion, which refers to feelings of being emotionally overwhelmed and exhausted by work, was measured

with the German version of the corresponding 5-item subscale of the Maslach Burnout Inventory—General Survey (Büssing & Glaser, 1998; Maslach, Jackson, & Leiter, 1996) e.g., “I feel emotionally drained by my work”. The response scale ranged from 1 (*totally disagree*) to 5 (*totally agree*).

Trait anxiety. Trait anxiety, reflecting the propensity to experience anxiety and worry, was measured using 10 items of the German version of the State-Trait-Anxiety Inventory (Laux, Glanzmann, Schaffner, & Spielberger, 1981; Spielberger, 1983), with a 4-point response scale (1 = *almost never*; 4 = *almost always*).

Demographics. We also collected data on age, gender and job.

Results

Preliminary analyses attenuated concerns about attrition. First, missing value analysis indicated

Table 2. *Exploratory factor analysis of anxiety motivation items*

	<i>Factor 1 (information)</i>	<i>Factor 2 (energy)</i>
Feeling somewhat anxious about a task or a situation at work...		
...reminds me that I need to work	.97	.17
...makes me aware that I need to work	.92	.24
...gives me a clear signal that I need to work harder	.92	.20
...gives me energy	.18	.89
...makes me more active in problem-solving	.18	.94
...energises me	.22	.95
...makes me channel my energy into my work	.22	.91

Note: Factor loadings above .30 are set in bold to facilitate interpretation.

that Time 2 data were missing completely at random. Second, multivariate analysis of variance indicated that there were no significant differences between participants who provided data at both times and those who did not participate at follow-up (on the key variables of anxiety information, anxiety energy, trait anxiety and emotional exhaustion; $F(4, 109) = 1.28, p > .10$).

Exploratory factor analysis of anxiety information and anxiety energy items, using oblique rotation, yielded two distinct factors, as expected (considering eigenvalues, scree plot and interpretability). These two factors explained 87% of the variance. The pattern matrix, reported in Table 2, revealed a simple structure: primary loadings above .80 and cross-loadings below .25. The temporal stability of the anxiety motivation scales, over the course of one year, was .55 for information and .71 for energy ($ps < .01$).

Table 1 reports descriptive statistics, reliabilities and intercorrelations for the key measures of interest. Note that correlations between trait anxiety, on the one hand, and anxiety motivation information and energy, on the other, were modest, indicating limited conceptual overlap. In line with Hypothesis 1, both anxiety energy and anxiety information, measured at baseline, were negatively associated with emotional exhaustion one year later. Hypothesis 2, regarding moderation, was evaluated using multiple regression analysis, controlling for emotional exhaustion at Time 1. Independent variables were centred (standardised) before computing the interaction term, as recommended by Aiken and West (1991). The results of these analyses are summarised in Table 3. In separate analyses, both anxiety information and anxiety energy moderated the relationship between trait anxiety at Time 1 and emotional exhaustion at Time 2, controlling for baseline emotional exhaustion (see Models 1 and 2). The additional variance explained by anxiety motivation and its interaction with trait anxiety was 10% for anxiety information (Model 1) and 16% for anxiety energy (Model 2). The results of simple slopes analyses, also shown in Table 3, indicate that trait anxiety predicted increased emotional exhaustion at Time 2 only

among individuals reporting low anxiety motivation and not among those reporting high anxiety motivation. Supplementary analyses revealed that these moderation results remained significant controlling not only for emotional exhaustion at Time 1 but also for age, gender and profession. In Model 3, we examined simultaneous moderation by anxiety information and anxiety energy. In this model, the main effect of anxiety information was no longer significant, whereas the main effect of anxiety energy was. In contrast, the interaction between trait anxiety and anxiety information remained significant, whereas the interaction between trait anxiety and anxiety energy did not.

Discussion

In a sample of doctors and teachers, whose jobs are relatively stressful, the self-perceived tendencies to experience and use anxiety as a source of information and energy were negatively related to emotional exhaustion measured one year later, as hypothesised. Furthermore, using anxiety as a source of energy predicted a decrease in emotional exhaustion over the course of one year. In separate analyses, both anxiety information and anxiety energy buffered people against the detrimental effects of trait anxiety, as expected, such that trait anxiety predicted an increase in emotional exhaustion one year later only for individuals reporting low anxiety motivation.

When anxiety information and anxiety energy were considered together in a simultaneous moderation analysis predicting change in emotional exhaustion one year later, we found asymmetrical relationships. Our finding that the main effect of anxiety energy was significant, whereas that of anxiety information was not supports the argument that we outlined in the introduction. There we argued that, although both dimensions of anxiety motivation might buffer people against emotional exhaustion to some extent, only experiencing and using anxiety as a source of energy replenishes emotional resources directly. Furthermore, experiencing and using anxiety as an indication that one should work harder may lead people to overstretch themselves and eventually

Table 3. Multiple regression analyses examining the moderating effect of anxiety motivation (information and energy) on the relationship between trait anxiety (at Time 1) and emotional exhaustion (at Time 2)

	<i>B</i>	<i>SE B</i>	<i>Simple slopes (at -1/+1 SD)</i>
<i>Model 1</i>			
Trait anxiety	.30**	.09	.51**/.10
Anxiety information	-.16	.10	
Trait anxiety × anxiety information	-.20*	.08	
<i>Model 2</i>			
Trait anxiety	.10	.10	.30**/-.10
Anxiety energy	-.36**	.10	
Trait anxiety × anxiety energy	-.20*	.08	
<i>Model 3</i>			
Trait anxiety	.12	.10	.33*/-.09
Anxiety information	.02	.11	
Anxiety energy	-.38**	.11	
Trait anxiety × anxiety information	-.21*	.10	
Trait anxiety × anxiety energy	-.08	.09	

Note: Independent variables were standardised. All analyses controlled for emotional exhaustion at Time 1. Simple slopes are reported for values of the moderator 1 *SD* below and above the mean. For Model 3, we report simple slopes for low and high values of anxiety energy only because the interaction with anxiety information was ns.

Model 1: $F(4, 81) = 9.86, p < .01; R^2 = .33$. Model 2: $F(4, 81) = 12.83, p < .01; R^2 = .39$. Model 3: $F(6, 79) = 9.72, p < .01; R^2 = .43$.

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

become exhausted. Our finding that anxiety information played a significant moderation role in this analysis, whereas anxiety energy did not was unexpected. It suggests that the beneficial effects of experiencing and using anxiety as a source of energy (on emotional exhaustion) may be largely independent of trait anxiety, whereas the protective effect of using anxiety as a source of information is significant only for highly anxious individuals. Nonetheless, considering the difficulty of predicting change over the course of one year, and the fact that statistical power to detect interaction effects was limited, null findings for interaction effects should not be over interpreted.

It is important to note that we sought to address the potential limitations of this study—including self-selection bias, attrition, reliance on self-report measures, generalisability and statistical power—in several ways. First, we distributed invitations to a reasonable number of clinics and schools to ensure some breadth of sampling within the medical and teaching professions. There is no reason to think that self-selection bias might influence the results of this study more than most psychological research. Second, the fact that

participants who did not respond at follow-up did not differ from those who completed the study attenuated concerns about attrition. Third, self-report measures are the most commonly used and possibly the most informative means of evaluating inner emotional experience. The longitudinal design of this study avoided the problems typically associated with reliance on same-source data collected at a single point in time. Moreover, interaction effects are unlikely to be distorted by common method bias (Siemens, Roth, & Oliveira, 2010). Fourth, although further research is needed to determine whether the relationships observed here generalise to other professions and cultures, the medical and teaching professions are important enough in themselves and are likely to be representative of other high-stress service professions. Finally, the fact that we found significant interaction effects despite modest statistical power enhances our confidence that the relationships observed here were not due to chance. Thus, our findings provided provocative evidence that using anxiety as a source of motivation explains changes in emotional exhaustion over time.

STUDY 2

Although Study 1 used a longitudinal design, it could not prove causality. Study 2 addressed this limitation of the previous study, using an experimental design. Specifically, we examined whether instructing people to use anxiety as a source of motivation protects them against emotional exhaustion following a somewhat stressful task. Study 1 found that the main effect of using anxiety as a source of energy was stronger than that of using anxiety as a source of information. Therefore, our manipulation of anxiety motivation in the present study was focused on the energy dimension of anxiety motivation.

Participants were randomly assigned to three conditions. In the anxiety motivation condition, they were instructed to use the energy evoked by any anxiety they might experience while completing the task. In the task focus condition, they were instructed to focus on the task. In the control condition, they were simply instructed to do their best. We hypothesised that participants in the anxiety motivation condition would experience lower levels of emotional exhaustion than those assigned to the other two conditions.

Method

Procedure and participants

Ninety-one undergraduate Psychology students enrolled at a Portuguese University participated voluntarily in this study in exchange for course credits. Seventy-nine per cent were female. Age ranged from 18 to 40 ($M = 21.74$, $SD = 3.95$).

Participants were randomly assigned to one of three experimental conditions: anxiety motivation ($N = 30$), task focus ($N = 32$) and control ($N = 29$). They completed the experiment one at a time. After signing the informed consent form, they completed a short questionnaire assessing their baseline level of emotional exhaustion.

Next they were asked to complete a task intended to induce some stress. All participants completed the same task: a subset of the Standard Ravens Progressive Matrices (Raven, Raven, &

Court, 2003), an intelligence test. The test includes five sets of 12 increasingly difficult items. We administered only one set. Participants received the following general instructions: "Please complete this task as fast as you can, making no mistakes. Any mistake will be marked as a penalty, and will add 60 seconds to your overall time. Remember that the 10 students with the best performance will receive a prize of 30 euros each". Depending on the experimental condition to which participants were assigned, the instructions then continued as follows: "If you experience stress or anxiety, try to channel or use the energy those feelings may arouse in order to do your best" (anxiety motivation); "If you experience stress or anxiety, try to focus on the task in order to do your best" (task focus) and "Please try to do your best" (control group).

We put participants under pressure in several ways. First, they were given only three minutes to complete this task, whereas pilot testing had revealed that it actually took students more than five minutes to complete it. Second, participants were told the time left at one-minute intervals, and the last 10 seconds were counted down. Third, they were told that participants who scored in the top 10% would receive a prize of 30 euros each. Fourth, they were given false feedback on the computer screen twice during the task (after Questions 4 and 9), indicating that their performance was just below the top 10%. At both points, they were also reminded (through a message displayed on the screen) of the task instructions specific to the experimental condition to which they had been assigned (e.g., channel and use the anxiety): "Your performance is currently somewhat below the top 10%. In order to improve your performance, please...*[insert here reminder of relevant instructions]*".

After the task, participants completed a second questionnaire, assessing their current level of emotional exhaustion and the anxiety motivation they experienced during the task. Additional questions were asked to determine whether participants were aware of the purpose of the study and how they felt when they received feedback during the task. Finally, participants were debriefed.

All data exclusions, manipulations and measures used to test the hypotheses examined here are reported. Additional data were collected from the same participants for other research purposes.

Measures

Emotional exhaustion. Emotional exhaustion was measured before and after the task, using three items from the Portuguese version of the corresponding subscale of the Maslach Burnout Inventory (Maslach et al., 1996; Schaufeli, Martínez, Marques Pinto, Salanova, & Bakker, 2002). Participants were asked to “indicate to what extent you feel this way right now”, on a response scale ranging from 1 (very slightly or not at all) to 5 (extremely).

Anxiety motivation. Anxiety motivation was measured after the task, as a manipulation check, using the same scale as in Study 1. The instructions were adapted to the task: “When answering the following questions, please think of how you were feeling during the task. If you were feeling anxious or under pressure, how did you experience this feeling?” The response scale ranged from 1 (totally disagree) to 5 (totally agree). The scale was translated into Portuguese and back-translated by different individuals, native speakers of Portuguese and English.

Results and discussion

Post-task anxiety motivation scores indicated that our key experimental manipulation worked: Individuals in the anxiety motivation condition reported higher levels of anxiety motivation energy compared to the other two groups ($F(2, 88) = 2.98, p = .06$).

In order to test our hypotheses, we used ANCOVA comparing the three groups on post-task emotional exhaustion, controlling baseline emotional exhaustion as a covariate. In line with our hypothesis, there was a difference among the three groups in the levels of emotional exhaustion after the task ($F(2, 87) = 5.44, p < .01$). Participants in the anxiety motivation condition

reported the lowest level of emotional exhaustion ($M = 1.68$, compared to 2.49 for the task focus group and 2.16 for the control group). A further analysis, comparing the anxiety motivation group to the other two groups combined, yielded similar results: ($F(1, 88) = 8.92, \eta_p^2 = .09, p < .01$).

The results of Study 2 suggest a causal effect of anxiety motivation. Participants who were instructed to channel their anxiety during the task experienced significantly lower levels of emotional exhaustion after the task, compared to the other two groups. This indicates that anxiety motivation not only predicts reduced levels of emotional exhaustion over the course of one year (Study 1) but also actually causes reduced emotional exhaustion following a stressful task.

One limitation of this study is that we did not actually measure the extent to which participants experienced anxiety during the experimental task. Nonetheless, pilot testing and debriefing questions indicated that the vast majority of participants experienced some pressure or found the task at least somewhat stressful. Furthermore, the fact that participants were not aware of the purposes of the study suggests that our results could not be attributed to demand characteristics.

GENERAL DISCUSSION

The findings of these two studies offer valuable insights into the relationship between anxiety, anxiety motivation and emotional exhaustion. Both studies supported our claim that experiencing and using anxiety as a source of information and energy protects people against emotional exhaustion. In Study 1, a longitudinal study involving doctors and teachers, whose jobs are relatively stressful, both dimensions of anxiety motivation predicted lower emotional exhaustion one year later. Using anxiety as a source of energy was more strongly related to emotional exhaustion than using anxiety as a source of information, and actually predicted a decrease in emotional exhaustion over the course of one year. Furthermore, both dimensions of anxiety motivation attenuated the detrimental effects of trait anxiety on later emotional

exhaustion. Prior research revealed that trait anxiety is a risk factor for developing emotional exhaustion and burnout. Our results study shed light on a characteristic that buffers people against some of the detrimental effects of trait anxiety.

In Study 2, we used an experimental design to show that using anxiety as a source of energy has a causal influence on emotional exhaustion following a somewhat stressful task. As expected, participants in the anxiety motivation condition reported significantly lower levels of emotional exhaustion after the task than participants instructed to focus on the task or to simply do their best.

The present findings contribute to our understanding of the experience and motivating functions of anxiety, and their relationship with emotional exhaustion. Previous research in the field of sports psychology found that some athletes view somatic and cognitive symptoms of competitive anxiety as facilitating performance (Jones & Uphill, 2004). The present studies build upon and extend that research by examining the motivational functions of anxiety rather than performance effects, relating these motivational functions of anxiety to emotional exhaustion, and studying these effects in contexts other than sports. We found meaningful individual differences in the tendency to experience and use anxiety as a source of information and energy. These two dimensions of anxiety motivation could be distinguished empirically and revealed limited overlap with trait anxiety, which reflects the tendency to experience anxiety frequently and intensely across situations (Study 1). This supports our claim that anxiety motivation, which focuses on the way that people experience and use anxiety, is distinct from the level of anxiety experienced. It is possible, however, that the two dimensions of anxiety motivation that we investigated may be related to cognitive and somatic dimensions of anxiety symptoms identified by the multidimensional theory of anxiety (Martens et al., 1990) and catastrophe theory (Hardy & Parfitt, 1991). Sports psychologists found that athletes differ in the extent to which they believe symptoms of somatic (e.g., racing heart) versus cognitive (e.g., worrying) anxiety facilitate their performance. Future research

should examine the links between the tendencies to use anxiety as a form of information and energy, on the one hand, and beliefs that somatic and cognitive anxiety facilitate performance, on the other. Further research is also needed to explore the nomological network of the constructs examined here.

Our findings also raise provocative questions regarding the conceptualisation of emotional traits and abilities. Ultimately, understanding the motivational functions of anxiety may shed light on a dimension of emotional intelligence that has been relatively neglected until now—the ability to use emotions to motivate oneself and attain one's goals—and its relationship with emotion regulation. Conceptually, using anxiety as a form of energy may lie at the interface of using and regulating emotion, in so far as it involves automatic cognitive reappraisal, altering the experience of anxiety along the dimensions of valence and arousal and channelling energy towards goal pursuit. Consistent with the notion of emotional intelligence, using anxiety as a source of information and energy entails accepting emotions and taking advantage of their adaptive functions, rather than controlling emotional experience tightly or suppressing it. The processes underlying this ability are most likely to be effective and to prevent emotional exhaustion if they are automatic rather than effortful because effortful self-control tends to be draining.

Finally, our findings have implications for practice. In particular, they suggest that stress management training could teach people to use anxiety as a source of information and energy. In fact, Study 2 suggests that it is possible to induce anxiety motivation and prompt people to use anxiety as a source of energy using relatively simple instructions or reminders. Furthermore, people could be taught to accept stress and anxiety as a normal aspect of a challenging work life and take advantage of its functional characteristics, rather than attempt to suppress or overreact to the experience of stress and anxiety. Individuals in stressful jobs could be trained to interpret and think about anxiety and other negative emotions in a different, more appreciative way.

In sum, the present findings suggest that anxiety can be detrimental or useful, depending on what people make of it. It is, therefore, important to help people to use and manage anxiety effectively, as a source of information and energy.

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