

THE CATASTROPHIZING WORRY PROCESS IN GENERALIZED ANXIETY DISORDER: A PRELIMINARY INVESTIGATION OF AN ANALOG POPULATION

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Abstract. Effects of structured worry interviews were examined among analog-GAD and nonanxious college students. Thirty-four analog-GAD and 29 nonanxious control participants generated sequences of possible catastrophic outcomes for each of six worry topics using the Catastrophizing Interview Technique (Vasey & Borkovec, 1992). Threat ratings for each topic were collected, and ratings of subjective distress, likelihood of the feared outcome, and perceived control over the feared outcome were obtained immediately following each interview. Results indicated that the analog-GAD group rated the worry topics of achievement, social relations, and economics as more threatening than their nonanxious counterparts. The analog-GAD group also generated more catastrophizing steps and reported higher levels of negative mood following the worry interviews. In addition, the eventual fear underlying each worry was determined by coding the content of the final outcome step from each interview. Results from the coded interview responses indicated that fears of negative emotion and of failure were the most frequently coded categories in each of the six topical domains for the analog-GAD group. Although there was no difference in the proportion of negative emotion codes between analog-GAD and nonanxious groups, the analog-GAD group did receive a greater proportion of failure codes than the nonanxious control group. Results largely replicated the findings of Vasey and Borkovec in an analog-GAD sample. In addition, results suggest that fear of negative emotion underlies worry in general, regardless of diagnostic status, while fears of failure or ineffectiveness are more specific to GAD.

Keywords: Generalized anxiety disorder, worry, anxiety, catastrophizing.

Introduction

Worry is the cognitive process during anxiety that aims to prepare an individual for future threat (Barlow, 1988). Pathological worry is most often associated with the diagnosis of

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generalized anxiety disorder (GAD), the anxiety disorder characterized by excessive and uncontrollable worry and accompanying chronic anxiety symptoms. This type of worry involves the process of “catastrophizing”, in which individuals automatically question “what if” progressively more threatening feared outcomes occur (Kendall & Ingram, 1987). A series of studies have compared the catastrophizing worry process between chronically worried and nonworried individuals and have found certain characteristics distinguishing these two groups. Compared to nonworriers, worriers tend to generate more steps when catastrophizing (Vasey & Borkovec, 1992; Davey & Levy, 1998) and consider these steps more likely to happen (Vasey & Borkovec, 1992; Provencher, Freeston, Dugas, & Ladouceur, 2000).

In the first of these studies, Vasey and Borkovec (1992) developed a procedure known as the Catastrophizing Interview Technique. This interview procedure is based on the cognitive therapy decatastrophizing technique, in which the automatic “what if” questioning style becomes overt through a series of therapist questions. Chronic worrier and nonworrier psychology students completed this standardized interview in response to two personally relevant worry topics generated by the participant. After each interview, ratings of distress and likelihood were collected for each interview step, and each step was later coded for content. Results showed that chronic worriers generated more catastrophizing steps during the interview, reported greater distress over the course of the interview, and rated the interview steps as more likely than their nonworrier counterparts. Content analyses from all steps of the interviews revealed that worriers generated proportionally more “failure/ineffectiveness” responses than nonworriers. These results were consistent with a follow-up investigation by Davey and Levy (1998), in which trait worry scores correlated positively with both the number of steps generated during the interview and with independent judges’ ratings of “feelings of personal inadequacy”.

These initial studies were limited in two important ways. First, neither study assessed GAD diagnostic status. Some overlap is expected between self-identified chronic worriers and individuals meeting full DSM-IV diagnostic criteria for GAD (Molina & Borkovec, 1994). However, Ruscio (in press) recently demonstrated several differences between chronic worriers with and chronic worriers without GAD. Second, the previous study examining the content of the interview responses (Vasey & Borkovec, 1992) collapsed the content codes across the interview steps. While this approach allowed for analysis of the entire process, it did not allow for analysis of the final interview step. The content reflected in the final step may be of particular importance if it reflects “core fear structures” that are “more anxiety provoking than surface-level concerns” (Vasey & Borkovec, p. 517). Therefore, analysis of the final interview step may reflect differences in the core fears underlying the worry of chronic worriers and nonworriers.

In a third Catastrophizing Interview Technique study, Provencher et al. (2000) sought to replicate the findings of Vasey and Borkovec (1992) and addressed the two concerns outlined above. Provencher et al. failed to find a significant difference in the number of steps between analog-GAD and nonanxious groups, although the authors suggested that this may have resulted from methodological differences. As expected, the analog-GAD group rated the feared outcomes identified in the interview steps as more likely than the nonanxious group. Independent judge ratings of the final interview step indicated that the analog-GAD group reported more severe feared outcomes than the nonanxious group. While this finding

demonstrated that GAD individuals' worry reflects fears of more catastrophic outcomes, group differences in the content of those outcomes were not examined.

The present investigation aimed to replicate and extend previous Catastrophizing Interview Technique findings in an analog-GAD population. Specifically, it was predicted that analog-GAD individuals would generate more catastrophizing interview steps than non-anxious participants. This result would suggest that Provencher et al. (2000) failed to replicate the original Vasey and Borkovec (1992) finding in an analog-GAD population due to methodological factors other than participant selection. In accord with previous studies, we also expected that the GAD-analog group would report greater distress in response to the interviews and would rate their feared outcomes as more likely when compared to the nonanxious group. In addition, it was predicted that analog-GAD participants would indicate lower perceived control over their feared outcomes than the nonanxious participants.

A second aim was to extend previous findings by coding the final step of the catastrophizing interviews for both the content and the object of threat. If the content of threat reflected in the final step of each interview represents an individual's fear underlying that particular worry topic, then content analysis of this response may provide insight into the fears underlying analog-GAD and nonanxious participants' worry. Previous content analyses of worry topics only examined the initial topic identified by participants without probing for the eventual feared outcomes underlying such worries (e.g., Craske, Rapee, Jackel, & Barlow, 1989; Roemer, Molina, & Borkovec, 1997). At this superficial level of analysis, few differences between GAD and nonanxious groups emerged, although GAD individuals did report higher frequencies of topics reflecting minor issues categorized as "miscellaneous" (Craske et al., 1989; Roemer et al., 1997). However, content analyses from two previous catastrophizing interview studies suggested that worried individuals' feared outcomes are characterized by "failure/ineffectiveness" (Vasey & Borkovec, 1992) and "feelings of personal inadequacy" (Davey & Levy, 1998) more often than nonworried individuals. Although they involved a deeper level of analysis than worry topic investigations, these studies did not evaluate the content of the final step.

Another possible content difference not yet investigated involves fears of negative emotion. A growing body of research suggests that chronic worry serves the purpose of avoiding emotional material (see Borkovec, 1994 and Borkovec, Alcaine and Behar, in press, for reviews). Although previous research has demonstrated ways in which worry functions to decrease emotional experience, it has not been established whether GAD stems from core beliefs that emotions are dangerous. In his cognitive model of GAD, Wells (1995) proposed that negative beliefs about the worry process itself (i.e., "meta-worry") maintain pathological worry in GAD. Recent data demonstrated higher rates of such metacognition in GAD patients compared to other anxious, depressed, and asymptomatic individuals (Wells & Carter, 2001). It has not been determined, however, whether beliefs that worry is dangerous reflect more general beliefs that negative emotions are harmful among GAD individuals. Therefore, we predicted that two particular content themes would be detected in the final interview step of the analog-GAD group more than the nonanxious group: fear of failure and fear of emotion.

The object of the threat reflected in the final interview step was also coded. Boehnke, Schwartz, Stromberg and Sagiv (1998) recently suggested that worry involving the welfare of oneself or significant others is associated with anxiety, whereas worry regarding threat to society or the world at large is linked to political activism and emotional well-being.

However, Vasey and Borkovec (1992) only coded for the objects of ‘self’ and ‘significant other’. Therefore, all four object code categories identified by Boehnke et al. were included: self, close others, society, and world. If the object of the threat reflected in worry can distinguish analog-GAD from nonanxious individuals (Boehnke et al.), then the final interview step among analog-GAD participants should reflect threats to the self or close others more often than the nonanxious group.

A final limitation of previous catastrophizing interview studies is that they investigated only those worry topics generated by the participants and therefore could not compare the catastrophizing process across different topical domains. The current study held the worry topics constant by conducting the same six catastrophizing interviews for each participant. Each participant identified their main worry within each of six content domains proposed by Boehnke et al. (1998): Health, Environment, Social Relations, Achievement, Economics, and Safety. This design feature allowed for within-participant comparisons of the catastrophizing process across six different worry domains.

Method

Participants

Approximately 550 introductory psychology university students completed the GAD-Q-IV (Newman et al., 2002) and the Penn State Worry Questionnaire (PSWQ), a widely used measure of general trait worry with strong psychometric properties (Meyer, Miller, Metzger, & Borkovec, 1990; Molina & Borkovec, 1994), during a mass testing session. The GAD-Q-IV is a self-report diagnostic screening instrument designed to identify GAD according to DSM-IV criteria (American Psychiatric Association, 1994). Recent studies support its use as a reliable and valid measure of GAD diagnostic status (Newman, et al., 2002). A total of 49 analog-GAD and 140 nonanxious control participants were eligible for participation. Of these, 34 participants (26 women, 8 men) who reported meeting all necessary diagnostic criteria for GAD (analog-GAD group) and 29 participants (21 women, 8 men) who denied meeting any GAD diagnostic criteria (nonanxious control group) completed the experiment.

Procedure

Participants attended a one hour-long individual experimental session for course credit. Experimenters were blind to participants’ GAD status, and each of five experimenters ran approximately equivalent proportions of GAD vs. nonanxious participants. After informed consent was obtained, the experimenter explained that he/she would be conducting structured interviews across six different worry topics. The Catastrophizing Interview questioning procedure was explained and examples of interview responses were provided to ensure that the procedure was understood.

The experimenter then presented the first of six content domains (health, environment, social relations, achievement, economics, safety) to the participants. Similar to the procedures of Davey and Levy (1998), the participant was asked to write his/her current main worry within that content domain at the top of a response sheet and to rate how seriously threatening he/she perceived this worry to be on a 100-point scale. This worry was then subjected to the Catastrophizing Interview, which each experimenter began by asking

“What is it that worries you about X?” (where X is that participant’s worry topic). Upon answering, the participant was instructed to write the answer verbatim on the response sheet. The experimenter then repeated this same question, this time substituting the participant’s answer to the first question. The participant was asked to write this next response verbatim on the response sheet. For example, if the first domain was health and the participant indicated that his/her main worry topic within that domain was getting sick, the first question would be “What is it that worries you about getting sick?” If the participant responded “because I’d miss my classes”, the experimenter would then ask “What is it that worries you about missing your classes?” If the participant responded “I’d fall behind in my schoolwork”, the experimenter would then ask “What is it that worries you about falling behind in your schoolwork?”, and so on. This standardized question format continued until the participant indicated that he/she could not generate any further responses.

Immediately following the final interview response, the participant rated to what extent he/she felt anxious, distressed, upset, and depressed on a visual analog scale. This scale was represented by a printed line 15 cm in length with the phrase “not at all” on the left-hand end and the phrase “extremely” on the right-hand end. The participant responded by writing a hash mark across the printed line to indicate how much each emotion was experienced. Visual analog ratings were scored by measuring the distance in mm from the left-hand end to the hash mark. Visual analog ratings of how much the participant’s normal worry was about that topic, how likely the feared outcome was to actually happen, and perceived control over that outcome were also collected. The experimenter then presented the second of the six content domains and repeated the Catastrophizing Interview and visual analog ratings for that worry topic. This procedure was repeated for all six content domains. The order of presentation for the six domains was partially counterbalanced using the “random starting order with rotation” selected orders procedure described by Shaughnessy and Zechmeister (1990). First, the six content domains were placed in random order. Next, this random sequence was systematically rotated with each domain moving one position to the left each time. This procedure ensured that each domain appeared in each ordinal position an equal number of times.

After the visual analog ratings were obtained from the sixth Catastrophizing Interview, the participant completed a packet of self-report questionnaires. These questionnaires were presented after the Catastrophizing Interviews to prevent any priming effects of material contained in the questionnaires on interview responses. The participant was then debriefed, given course credit, and thanked for his/her participation.

The handwritten responses to the Catastrophizing Interviews were transcribed so that coders could not determine which of the individual interviews corresponded to the same participant. However, approximately 40 of these original written interviews were lost before transcription. As a result, complete interview data from all six domains were only available for 29 GAD and 19 nonanxious participants. A series of independent samples *t*-tests indicated that there were no differences between the group of participants with complete data and the group of participants with missing interview data for any of the dependent variables. As a result, analyses were conducted using the entire sample when possible.

Two independent judges who did not serve as experimenters and were naïve to the study hypotheses coded the final step for both content and for the object of threat. The content of the final step from each interview was coded by placing the response into one of the 17 different content categories used by Vasey and Borkovec (1992). However, despite several training sessions to target sources of discrepancy, the independent judges had difficulty

reliably distinguishing between some of the original 17 categories. Both judges attributed their difficulty to high similarities in content among some of the categories. Therefore, like-content categories were collapsed, leaving a total of nine possible content codes: Failure/Ineffectiveness, Negative Emotion, Social Threat, Physical Harm, Death, Financial Difficulty, Loss of Possessions, School Difficulty, and Job Difficulty. The object of threat indicated by the final step from each interview was coded by placing the response into one of the four categories proposed by Boehnke et al. (1998): Self, Close Others, Society, and World. Inter-rater agreement for all available interviews occurred 75% of the time for content classification ($Kappa = .64$) and 85% of the time for object classification ($Kappa = .71$). All disagreements were resolved by consensus. Following the procedures of Davey and Levy (1998), the independent judges also rated the extent to which the final step of each interview was concerned with feelings of personal inadequacy on a 7-point scale. However, ratings from the two judges on this measure were not reliable (Pearson $r = .498$), so no subsequent analyses were performed.

Self-report questionnaire measures

Worry Domains Questionnaire (WDQ). The WDQ is a 25-item measure designed to assess the amount of worry within five specific content areas: relationships, lack of confidence, aimless future, work, and financial (Tallis, Eysenck, & Mathews, 1992; Tallis, Davey, & Bond, 1994). A total score reflecting the general frequency of worry is also computed. Respondents were presented with a list of 25 specific worry topics and rate how much they worry about each on a 5-point scale. Psychometric research suggested adequate test-retest reliability ($r = .79$; Tallis, 1989) and internal consistency (Cronbach's $\alpha = .92$; Davey, 1993).

Beck Depression Inventory (BDI). The BDI (Beck, 1978) is a widely used 21-item measure of depression included because elevated depression levels are common among GAD individuals (Borkovec & Ruscio, 2001). Participants responded to the items according to how they felt over the past week.

Micro/Macro Worries Scale. This scale was developed by Boehnke et al. (1998) to test their conceptualization of worry. Using a 5-point Likert scale, participants indicated how much they worried about 33 specific situations that varied across both content domain and object of perceived threat. Factor analysis yielded two separate factors, "Micro Worries" (i.e., the object of threat was the self or close others) and "Macro Worries" (i.e., the object of threat was society or the world). Micro and Macro subscales therefore comprise the sum of items from each of these two factors. For example, items from the Micro subscale include "my getting cancer", "my not having any close friends", and "someone in my family not having enough money to live on". Items from the Macro subscale include "conflict among groups in our society" and "people in the world dying of hunger".

Results

Standardized self-report questionnaire measures

Group comparisons on the self-report measures were conducted to demonstrate whether the analog-GAD group could be distinguished from the nonanxious control group on standardized measures of worry and depression. Multivariate analysis of variance (MANOVA) con-

Table 1. Means, standard deviations, and univariate statistics for standardized self-report measures for analog-GAD and nonanxious groups

Measure	Analog-GAD		Nonanxious		<i>F</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
PSWQ	65.39	7.33	35.14	8.98	209.85	.0001
BDI	16.18	7.77	5.96	4.26	38.56	.0001
WDQ total	60.00	17.65	30.04	16.73	45.78	.0001
WDQ subscales	12.65	4.21	5.28	3.77	52.74	.0001
Relationships						
Lack of confidence	13.21	3.69	6.76	4.58	38.27	.0001
Aimless future	13.71	4.32	6.52	4.05	45.92	.0001
Work	10.62	4.39	6.10	3.44	20.13	.0001
Financial	10.00	5.15	5.21	4.06	16.43	.0001

PSWQ: Penn State Worry Questionnaire; BDI: Beck Depression Inventory; WDQ: Worry Domains Questionnaire

ducted with PSWQ, WDQ total, and BDI scores yielded a main effect of Group [$F(3,57) = 74.83, p < .0001$]. As expected, the GAD group scored higher than the nonanxious group on all three measures. See Table 1 for means, standard deviations, and univariate statistics.

A second MANOVA was then conducted with the five WDQ subscale scores. A significant Group effect again emerged [$F(5,57) = 11.75, p < .0001$], demonstrating that the GAD group scored higher than the nonanxious group on all five WDQ domains (see Table 1).

Threat ratings of worry topics

Threat ratings (0–100 scale) for each worry topic collected immediately before each Catastrophizing Interview were analysed with a Group (GAD, Nonanxious) by Domain (Health, Environment, Social relations, Achievement, Economics, Safety) repeated measures ANOVA. This analysis was conducted to investigate whether any of the six topics presented in the interviews were perceived as more threatening by the analog-GAD group compared to the nonanxious group. One nonanxious participant was excluded from this analysis due to an inability to generate a worry topic within one of the domains. To control for the inflation of Type 1 error, Bonferroni correction was applied by dividing $\alpha = .05$ by five, the total number of repeated measures ANOVAs performed ($.05/5 = .01$). Results from this analysis yielded a main effect of Group [$F(1,60) = 9.62, p < .01$] and of Domain [$F(5,56) = 6.49, p < .0001$], qualified by a Group by Domain interaction [$F(5,56) = 4.03, p < .01$]. Follow-up independent samples *t*-tests indicated that threat ratings were higher for the GAD group compared to the nonanxious group for the domains of Achievement ($p < .0001$), Social relations ($p < .0001$), and Economics ($p < .05$), with the domain of Health reaching marginal significance ($p < .065$). See Table 2 for means, standard deviations, and *t*-values.

Visual analog ratings

Analyses were then conducted on the subjective ratings collected immediately after each interview. One nonanxious participant was excluded from each of these analyses due to an

Table 2. Means, standard deviations, and *t*-values of threat ratings for analog-GAD and nonanxious groups by domain

Domain	Analog-GAD		Nonanxious		<i>t</i> (61)	<i>p</i> <
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Achievement	72.56	19.41	46.96	26.73	4.54	.0001
Social relations	71.85	22.35	47.75	24.80	3.80	.0001
Health	64.21	23.98	53.43	26.70	1.88	.065
Economics	61.24	23.46	48.86	26.76	2.02	.05
Safety	54.12	26.24	45.93	28.74	1.17	ns
Environment	42.62	26.72	43.21	26.11	-.202	ns

inability to generate a worry topic within one of the domains. To control for the inflation of Type 1 error, Bonferroni correction was again applied ($.05/5 = .01$). To examine whether the analog-GAD group reported negative mood in response to the interviews, a Group (GAD, Nonanxious) by Domain (Health, Environment, Social relations, Achievement, Economics, Safety) repeated measures ANOVA on the total score from the four mood ratings was conducted. Due to the high correlation between the four separate ratings (anxious, distressed, upset, and depressed), these ratings were summed to form a negative mood total score. This analysis revealed a main effect of Group [$F(1,60) = 10.22, p < .01$] and of Domain [$F(5,56) = 7.11, p < .0001$]. The main effect of Group reflects that, overall, the GAD group reported higher levels of negative mood ($M = 233.44, SD = 90.82$) compared to the nonanxious group ($M = 149.03, SD = 117.06$) in response to the interviews. The domain main effect was examined with dependent samples *t*-tests comparing the six topical domains. To control for Type 1 error, another Bonferroni correction was conducted by dividing a *p*-value of .05 by the total number of possible comparisons ($.05/15 = .003$). These *t*-tests revealed that mood ratings were higher for the domain of Social Relations ($M = 238.47, SD = 147.65$) than for Economics ($M = 184.31, SD = 132.94$), Safety ($M = 174.08, SD = 126.28$), and Environment ($M = 153.45, SD = 113.94$) (all *p*'s < .0001). Mood ratings for the domains of Achievement ($M = 214.69, SD = 138.97$) and Health ($M = 206.92, SD = 147.15$) also were higher than Environment mood ratings (both *p*'s < .0001).

A Group by Domain repeated measures ANOVA on ratings of the feared outcome likelihood did not yield significant effects. This demonstrated that the analog-GAD group did not rate the final feared outcomes reflected in the interviews as more likely than the nonanxious group did.

Group by Domain repeated measures ANOVA for ratings of control over the feared outcome were conducted to test whether the analog-GAD group reported having less control over their feared outcomes than the nonanxious group. However, this analysis only yielded a main effect of Domain [$F(5,56) = 29.94, p < .0001$]. Follow-up dependent samples *t*-tests with Bonferroni correction ($.05/15 = .003$) showed that this domain effect was due to a higher control score for Achievement ($M = 114.29, SD = 25.49$) when compared to Social Relations ($M = 86.97, SD = 38.63$), Health ($M = 88.27, SD = 35.77$), and Economics ($M = 87.29, SD = 41.02$) (all *p*'s < .0001), which in turn were higher than both Safety ($M = 56.87, SD = 39.07$) and Environment ($M = 53.73, SD = 41.10$) (all *p*'s < .0001). This term was worded such that a higher control score indicates greater perceived control.

To determine whether there were differences in the most typical worry topics for GAD and nonanxious participants, the two groups were compared on these measures by selecting the one domain rated as most like their normal worry. This yielded the same group differences as before (e.g., higher threat ratings and greater negative mood for the GAD group compared to the nonanxious group with no group differences for likelihood or control ratings), and the frequencies that each domain was represented were the same for each group.

Catastrophizing Interview responses

A Group by Domain repeated measures ANOVA was conducted on the number of catastrophizing steps generated during each interview to determine whether the analog-GAD group generated more steps during the interviews than the nonanxious group. A main effect of Group [$F(1,46) = 7.33, p < .01$; significant with the Bonferroni correction ($.05/5 = .01$)] showed that, overall, the GAD group generated more catastrophizing steps during their interviews ($M = 8.74, SD = 2.87$) than the nonanxious group ($M = 6.61, SD = 2.44$).

The content and object codes of the final step from each interview were then analysed. Content category percentages for each of the six domains by group are presented in Table 3. The content categories of Negative Emotion and Failure/Ineffectiveness were among the most frequently coded for the analog-GAD group across the six domains. The Negative Emotion category was one of the two most frequently coded categories for each of the six domains among nonanxious participants. Due to both the frequency that these content categories were identified and the theoretical relevance of these two particular categories, subsequent analyses were conducted on the Negative Emotion and Failure/Ineffectiveness frequencies. Independent samples *t*-test of the ratio of Negative Emotion codes to total codes yielded no group differences ($p < .46$). Similarly, a Fisher's Exact Test comparing the presence or absence of a Negative Emotion code by group status yielded no effect ($p < .65$). However, independent samples *t*-test of the ratio of Failure/Ineffectiveness codes to total codes revealed a higher ratio of Failure/Ineffectiveness codes in the analog-GAD group ($M = .33, SD = .22$) than the nonanxious group [$M = .22, SD = .22; t(61) = 2.00, p < .05$]. Similarly, Fisher's Exact Test comparing the presence or absence of a Failure/Ineffectiveness code by group status was significant ($p < .05$).

Table 4 shows that the object of threat coded for both groups was most often "self". Fisher's Exact Test of the frequency with which each group received an object code of "self" failed to yield a group difference ($p < .44$).

Micro/Macro Worries Scale

Independent-samples *t*-tests were conducted for the Micro and Macro subscales of the Micro/Macro Worries Scale (Boehnke et al., 1998). These analyses were conducted to examine whether the analog-GAD group worried more than the nonanxious group about "micro" level worries (i.e., worry in which the self or close others are the object of the threat) but not about "macro" level worries (i.e., worry in which society or the world is the object of the threat). Results indicated that the analog-GAD group ($M = 49.7, SD = 9.8$) scored higher than the nonanxious group ($M = 32.6, SD = 10.8$) on the Micro subscale [$t(61) = 6.63, p < .0001$]. However, the analog-GAD group ($M = 28.5, SD = 11.1$) also scored higher than the

Table 3. Percentages of content categories coded for the six domains by group

Domain	Failure/ ineffectiveness	Negative emotion	Content coded			
			Social threat	Physical harm	Death	Financial difficulty
Achievement						
Analog-GAD	52	30	15	0	0	3
Nonanxious	46	23	18	0	0	14
Social relations						
Analog-GAD	30	30	36	3	0	0
Nonanxious	21	32	47	0	0	0
Health						
Analog-GAD	34	44	13	6	3	0
Nonanxious	7	48	26	7	11	0
Economics						
Analog-GAD	34	28	16	0	3	16
Nonanxious	26	37	15	4	0	19
Safety						
Analog-GAD	13	53	9	13	9	0
Nonanxious	33	42	21	4	0	0
Environment						
Analog-GAD	31	38	16	3	6	3
Nonanxious	20	32	12	12	24	0

Note: Loss of Possessions, Job Difficulty, and School Difficulty content categories are not included due to the low frequency of their occurrence

nonanxious group ($M = 21.6$, $SD = 12.0$) on the Macro subscale [$t(61) = 2.38$, $p < .05$]. Taken together, these findings reflect greater self-reported worry for analog-GAD participants compared to nonanxious participants regarding topics that involve threat to the self and close others as well as to society and the world.

Discussion

The current investigation partially replicated previous Catastrophizing Interview findings in an analog-GAD sample. As predicted, the analog-GAD group generated more catastrophizing steps during the interviews than the nonanxious group. GAD individuals may catastrophize during worry more than nonanxious individuals because of easy access to elaborate memory stores of threatening material following repetition (Vasey & Borkovec, 1992). Indeed, a recent analysis of worrisome thoughts revealed that higher levels of trait worry were associated with a greater degree of rumination and a lesser degree of successful problem solving (Szabó & Lovibond, 2002). Alternatively, the greater number of steps for the analog-GAD group compared to the nonanxious group may not be specific to the process of worry. Davey and colleagues have demonstrated that this perseverative tendency can also be found with positively valenced material (Davey & Levy, 1998) and that induction of negative mood also led to increased steps in such a positive iteration task (Startup & Davey, 2001). Rather than conclude that negative mood simply primes for more negative steps or

Table 4. Percentages of object categories coded for the six domains by group

Domain	Self	Object coded		
		Close other	Society	World
Achievement				
Analog-GAD	94	6	0	0
Nonanxious	95.5	0	4.5	0
Social relations				
Analog-GAD	85	3	12	0
Nonanxious	90	5	5	0
Health				
Analog-GAD	94	3	3	0
Nonanxious	100	0	0	0
Economics				
Analog-GAD	81	13	0	6
Nonanxious	81	11	4	4
Safety				
Analog-GAD	75	16	9	0
Nonanxious	87.5	0	12.5	0
Environment				
Analog-GAD	56	9.5	25	9.5
Nonanxious	56	8	12	24

that worriers possess a general tendency toward perseveration. Startup and Davey proposed a “mood-as-input” hypothesis. That is, the presence of a negative mood leaves individuals prone to determine they have not satisfactorily completed the implicit task of generating as many steps as possible, thereby continuing the task beyond the point of individuals experiencing a positive or neutral mood.

The analog-GAD group also exhibited higher negative mood ratings than the nonanxious group following the interviews. This finding suggests that an episode of worry is related to greater distress for GAD individuals than for nonanxious individuals. Thus, GAD individuals may be bothered by worry not only because of its high frequency but also because of its associated excessive distress. At first glance, this common finding that chronic worry is associated with subjective distress may appear contradictory to Borkovec’s avoidance theory of worry. However, Borkovec et al. (in press) have recently explained this apparent paradox. Although worry reduces some of the more aversive aspects of fear responding (e.g., sympathetic activation), it strengthens the anxious meaning of the feared event(s), thereby generating less aversive yet uncomfortable emotional states. (See Borkovec et al. for a comprehensive review of this theory and supporting empirical literature).

In contrast to previous studies, the current investigation did not find that the feared outcomes reflected in the interviews were considered more likely by analog-GAD participants than by nonanxious participants. This discrepancy could reflect differences in methodology, as the single-point rating used in the current study may have been a less reliable measure of perceived likelihood than the average-based measures used in previous research. The current study also attempted to extend previous research by including a measure of perceived

controllability over the feared outcomes reflected in the final interview steps. However, no group differences in the amount of perceived control over these outcomes were found.

A significant departure from previous experiments was the use of multiple interviews employing the same six worry topics for each participant. This allowed for comparison across various worry topics on a variety of dependent measures. Prominent worry topics identified by GAD and nonanxious individuals are often similar in content (Craske et al., 1989; Roemer et al., 1997). However, results from the current investigation revealed that the analog-GAD group rated the topics of achievement, social relations, and economics but not the topics of health, safety, or the environment as more threatening than the nonanxious group did. Hence, frequently reported spheres of worry (e.g., social relations, achievements; Roemer et al., 1997) were considered more threatening by analog-GAD than by nonanxious participants. Group differences were not present for less common topics, such as the environment. GAD individuals may perceive the life domains about which they worry to be more threatening than do nonanxious individuals, but this increased perceived threat may not apply to all possible worry topics. Further, domain main effect analyses demonstrated that both groups of participants experienced differential degrees of negative mood and perceived controllability over feared outcomes depending on the interview worry topic. Taken together, results from comparisons across the six different domains suggest that an individual's reaction to the catastrophizing process may depend on the topical domain of the worry.

The content reflected in the final step of each interview allowed for investigation of the eventual feared outcome underlying each worry topic. Based on previous work suggesting that worry serves to avoid negative emotion (Borkovec, 1994), we predicted that the analog-GAD group would report more fears of emotion in the final interview step than the non-anxious group would. However, independent judges determined that this category was reflected in much of the worry across the six domains for both analog-GAD and nonanxious participants. No group differences were found for this content category. It is possible that catastrophizing worry process imposed on all participants in the current study is more characteristic of the worry process for GAD than for nonanxious individuals (Davey, 1994). Nevertheless, content analyses suggest that a fear of emotion often underlies this type of worry regardless of GAD status.

The analog-GAD group did, however, generate a greater proportion of responses reflecting fear of failure/ineffectiveness than the nonanxious control group. This finding replicates previous Catastrophizing Interview research (Vasey & Borkovec, 1992; Davey & Levy, 1998) and is consistent with a recent investigation of the thought content unique to GAD. Breitholtz, Johansson and Öst (1999) categorized cognitions of GAD and of panic disorder patients and found that the GAD group had significantly more thoughts related to themes of competence and acceptance (as well as interpersonal confrontation, concern about others, and minor matters) than the panic disorder group did. Taken together, the current content analyses suggest catastrophic worry generally reflects a fear of undesired emotion, while GAD individuals' worry in particular may also involve a fear of failure, inadequacy, or incompetence. Perhaps catastrophic worry is merely an effective tool to avoid unwanted emotion that is often employed by GAD individuals; this strategy is used only on occasion by the less anxious. Fears of incompetence or ineffectiveness specific to GAD may drive the GAD individual to rely on catastrophic worry over more efficient problem-solving strategies. This distinction between pathological and normal worry is consistent with research

demonstrating poorer problem-solving confidence and greater feelings of personal inadequacy among high worriers compared to low worriers (e.g., Ladouceur, Blais, Freeston, & Dugas, 1998; Davey & Levy, 1998). This group difference in threat content was not accompanied by group differences in the object of the perceived threat. The suggestion by Boehnke and colleagues (1998) that healthy and anxious individuals' worry can be distinguished according to the object of threat was not supported. Results from the current study suggest that catastrophic worry usually involves an eventual threat to the self for all individuals, regardless of the initial worry topic.

Several limitations should be considered in the interpretation of these findings. First, these results may not generalize to treatment-seeking clinical populations. Although previous research (Newman et al., 2002) suggests that a substantial majority of the analog-GAD group would be diagnosed with GAD using a semi-structured diagnostic interview, all participants were college students earning course credit. Future research that extends these findings to clinical populations would allow for investigation of the fears underlying worry among treatment-seeking individuals. Second, preliminary results from the coded data must be interpreted with caution. Because portions of the original interview response data were lost, content and object analyses could not be conducted on the entire sample. Further, reliability between the independent judges was lower than reported by Vasey and Borkovec (1992). Third, all variables were reliant on self-report. Therefore, results may have been affected by response biases or by social desirability. This concern is most relevant to the number of interview steps generated; the analog-GAD participants may have continued the interview longer if they felt more inclined to please the experimenter. Fourth, because of inequalities in self-reported threat and mood ratings between the two groups, it is possible that these differences confounded the interview steps results. However, correlations between the number of interview steps and the threat rating for each domain revealed only one significant correlation (social relations: $r = .285, p < .05$). Similarly, correlations between the number of interview steps and the total mood rating for each domain also revealed only one significant correlation (economics: $r = .300, p < .05$). Neither of these correlations would be considered significant following Bonferroni correction ($.05/6 = .008$). Finally, the questioning style imposed by the Catastrophizing Interview may not accurately reflect the process of worry for all participants. In particular, it is unclear to what extent this rapid sequence of questions toward a feared outcome characterizes the worry of nonanxious individuals. The current research does not examine the actual process of worry among GAD and nonanxious individuals. Novel worry research paradigms imposing less structure would allow for investigation of naturally occurring worry processes between groups of individuals.

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