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Dimensions of Test Anxiety:

Relations to Ways of Coping with Pre-Exam Anxiety and Uncertainty

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## Abstract

Cumulative evidence has shown that four dimensions can be differentiated in the experience of test anxiety: worry, emotionality, interference, and lack of confidence. To investigate whether these dimensions show specific relationships with ways of coping, a study with 162 students (75 male, 87 female) examined how students cope with anxiety and uncertainty in the run-up to important exams. Coping strategies included task-orientation and preparation, seeking social support, and avoidance. Results showed that overall test anxiety was related to seeking social support. When dimensions of test anxiety were inspected individually while controlling for interdimensional overlap, however, results showed a specific pattern of relationships: (a) worry was related to task-orientation and preparation and inversely related to cognitive avoidance, (b) emotionality was related to task-orientation and preparation and seeking social support, and (c) interference was related to avoidance and inversely related to task-orientation and preparation, whereas (d) lack of confidence was related to avoidance only. Although some gender differences emerged, the findings indicate that the main components of test anxiety display different relationships with coping. Moreover, they confirm that it is important to differentiate between worry and interference because these dimensions, albeit closely related, may show opposite relationships with ways of coping.

Keywords: Test Anxiety, Coping, Worry, Emotionality, Social Support, Avoidance

### Dimensions of Test Anxiety:

#### Relations to Ways of Coping with Pre-Exam Anxiety and Uncertainty

Over the last decade, the conceptualization of test anxiety has seen important advances, with developments of new measures reflecting the multidimensional nature of test anxiety. In parallel, research on coping with tests has broadened its focus from a narrow perspective on the examination situation to a broader view that includes the phases before and after the examination itself, such as the learning phase, the preparation phase, and the post-result phase (Raffety, Smith, & Ptacek, 1997).

However, few studies have addressed the question of whether the different dimensions of test anxiety show specific relationships with different coping strategies. Therefore, the aim of the present study was to attend to this question by investigating how the main components of test anxiety are related to the ways that students cope with pre-exam anxiety and uncertainty.

Test anxiety can be conceptualized as a situation-specific trait, namely as a disposition to react with heightened anxiety in the face of situations that are specifically related to tests and performance (Hodapp, Glanzmann, & Laux, 1995). Whereas early conceptions viewed test anxiety as a unidimensional construct, research soon showed test anxiety to be multidimensional in nature (for a review, see Zeidner, 1998). A critical distinction was introduced by Liebert and Morris (1967), who differentiated two major components of test anxiety: a cognitive component they labeled "worry," that referred to concerns about being evaluated and about the consequences of failure, and an affective component they labeled "emotionality," that referred to the perception of autonomic reactions evoked by the test situation. Apart from demonstrating that the two components can be differentiated psychometrically, Morris and Liebert (1970)

demonstrated that they show differential relationships with performance. When partial correlations were computed to control for the high overlap between the two components, worry was related to low performance, but emotionality was not. With further evidence accumulating that worry and emotionality in test anxiety show different and specific relationships (for a review, see Morris, Davis, & Hutchings, 1981), the distinction between worry and emotionality became a basic conception. It was consequently incorporated into standard measures of test anxiety, of which the most prominent and widely used is arguably Spielberger's (1980) Test Anxiety Inventory (TAI).

However, construct differentiation did not stop here, and new multidimensional conceptualizations and measures of test anxiety were developed. In the wake of these developments, Hodapp (1991, 1995) sought to revise Spielberger's TAI and develop a new inventory incorporating the various dimensions of test anxiety that had been discussed in the literature. To this end, he formulated a set of items tapping existential worry, worry about coping, self-concern, anticipation of failure, confidence, self-evaluation, bodily symptoms, tension, release, escape cognitions, irrelevant thinking, and cognitive interference (for details, see Hodapp, 1995). Exploratory factor analysis (principal component analysis with subsequent varimax rotation) showed that a four-factor solution captured the data best. Taking the marker items from each factor produced a four-dimensional inventory of test anxiety, named the German Test Anxiety Inventory (TAI-G), with four subscales measuring (a) worry, (b) emotionality, (c) interference, and (d) lack of confidence.

Subsequent studies, using confirmatory factor analysis and Rasch scaling, confirmed the dimensional structure of the TAI-G and demonstrated the

unidimensionality, reliability, and validity of the individual subscales in both German and US American samples (Hodapp, 1991, 1995; Hodapp & Benson, 1997; Keith, Hodapp, Schermelleh-Engel, & Moosbrugger, 2003; Musch & Bröder, 1999). In addition to excellent psychometric properties, the TAI-G has the great advantage that--while retaining the critical distinction of worry and emotionality introduced by Liebert and Morris (1967)--it includes two further important components of test anxiety: cognitive interference and lack of confidence. The interference component was introduced by Sarason (1984), who proposed a first differentiation of the cognitive component by distinguishing between worry and irrelevant thinking in his Reactions to Tests (RTT) scales. While the worry component captures general concerns about possible failure and the negative consequences of failure, the interference component taps distracting and blocking cognitions that disturb or interrupt performance during exams (Hodapp, 1991, 1995). At about the same time, Carver and Scheier (1984) proposed the lack of confidence component, but this initially failed to attract much attention in test anxiety research. Recently, however, this component has begun to generate more interest, with Meijer (2001; Meijer & Elshout, 2001) demonstrating that a self-confidence component could also be found in Morris *et al.*'s (1981) revised Worry-Emotionality Scale, and that lack of self-confidence was an important constituent of test anxiety, along with worry and emotionality. Therefore, the TAI-G represents a reliable and valid instrument that captures the four major dimensions of test anxiety that are discussed in current test anxiety research and featured in different instruments (Hodapp & Benson, 1997).

Coping with test situations is a major topic in test anxiety research. Coping behaviors help students to deal with the experience of stress and anxiety in test

situations and may eliminate or modify the conditions that cause the stress, thus keeping negative emotions at bay, and may--depending on the coping strategy chosen--promote adaptational outcomes and positive functioning (Lazarus & Folkman, 1984; Zeidner, 1998). Consequently, numerous studies have investigated the relationship between test anxiety and coping (for reviews, see Zeidner, 1995, 1998). Overall, findings show that high levels of test anxiety are predominantly related to emotion-focused coping and avoidance coping. However, some studies have found test anxiety to be related to more adaptive ways of coping such as proactive coping (Raffety *et al.*, 1997) and problem-focused coping, particularly task preparation (Kondo, 1997). Few studies, however, have as yet investigated whether the different dimensions of test anxiety also show specific relationships with different ways of coping with test situations.

Röhrle, Linkenheil, and Graf (1990), for example, investigated social support and coping with examination stress in law students. As a multidimensional measure of test anxiety, they employed an earlier German adaptation of the TAI (Hodapp, Laux, & Spielberger, 1982) capturing worry, emotionality, and feelings of competence. To measure ways of coping, Röhrle *et al.* employed a questionnaire covering 10 dimensions of individual and social forms of coping with examination stress. Results showed few differences in the relationships between dimensions of test anxiety and ways of coping. Both worry and emotionality were associated with higher levels of emotion-focused coping, whereas feelings of competence were associated with lower levels of emotion-focused coping and higher levels of social withdrawal. No association was found between the three dimensions of test anxiety and task-oriented forms of coping. Blankstein, Flett, and Watson (1992) investigated test anxiety and ways of coping in undergraduate students. As a multidimensional measure of test anxiety, they

employed Sarason's (1984) RTT scales capturing worry, irrelevant thinking, tension, and bodily symptoms. To measure ways of coping, they employed the Revised Ways of Coping Questionnaire (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). Results again showed few differences in the relationships between dimensions of test anxiety and ways of coping. All four RTT subscales showed positive correlations with confrontive coping (a way of problem-focused coping) and escape-avoidance. Moreover, worry showed a positive correlation with self-control (a way of emotion-focused coping).

Zeidner (1996) investigated test anxiety and coping among high school and college students in the run-up to an important exam. To measure test anxiety, students were presented with the TAI (Spielberger, 1980). To measure ways of coping, they were presented with selected strategies from the COPE inventory (Carver, Scheier, & Weintraub, 1989) and asked to indicate the degree to which they would use these strategies when preparing for the next important exam. Factor analysis indicated that the strategies could best be subsumed to three factors labeled problem-focused coping (combining the COPE subscales of active coping, planning, and suppression of competing activities), emotion-focused coping (combining seeking social support for instrumental reasons, seeking social support for emotional reasons, ventilation, positive reinterpretation, restraint, and humor), and avoidance coping (combining denial, mental disengagement, behavioral disengagement, religion, and alcohol/drug use). When factor scores were correlated with TAI worry and emotionality scores, results again showed very similar correlation patterns for the two components. In both high school and college students, worry and emotionality showed positive correlations with emotion-

focused coping and avoidance coping. Furthermore, in the college sample, worry showed a small negative correlation with problem-focused coping.

Finally, two studies have investigated the relationship of the TAI-G (Hodapp, 1991) with ways of coping. In the first study (Rost & Schermer, 1997, Study 5), high school students from grades 8 through 12 were presented the TAI-G to assess the four test anxiety components of worry, emotionality, interference, and lack of confidence. To measure ways of coping with test anxiety in exam situations, they were presented the coping scales of the Differential Performance Anxiety Inventory (DAI; Rost & Schermer, 1997) capturing four dimensions of coping: danger control by means of productive study behavior; situation control by means of avoidance and cheating; anxiety control by means of relaxation and anticipation; and anxiety suppression by means of distraction and trivialization. Results showed that worry and emotionality both showed positive correlations with all four coping strategies. Similar findings were obtained for interference, with the exception of a near-zero correlation with danger control by means of productive study behavior. In contrast, lack of confidence showed negative correlations with danger control by means of productive study behavior and with anxiety control by means of relaxation and anticipation, a positive correlation with situation control by means of avoidance and cheating, and a near-zero correlation with anxiety suppression by means of distraction and trivialization.

In the second study (Buchwald, 2002; Buchwald & Schwarzer, 2004) a sample of university students responded to the TAI-G and to trait and state versions of the exam-specific German Adaptation of the Strategic Approach to Coping Scale (GSACS-Exam; Buchwald & Schwarzer, 2003, 2004), a multidimensional measure that is based on Hobfoll's (1998) multi-axial model of coping and includes passive-active, direct-



indirect, and prosocial-antisocial coping strategies (C. Schwarzer, Starke, & Buchwald, 2003). In a longitudinal design, the TAI-G and the trait version of the coping scales were presented eight weeks prior to an important oral examination (T1) and the state version of the coping scale was presented directly after the examination (T3). Moreover, students were videotaped during the examination and the frequency of their coping behaviors was coded by observers (T2). Results showed that worry was associated with lower levels of instinctive action and aggressive-antisocial action at T1 (Buchwald & Schwarzer, 2004). Moreover, when employing multiple regression to control overlap between the TAI-G scales, worry at T1 predicted lower levels of avoidance coping at T3 (Buchwald, 2002). In contrast, emotionality, interference, and lack of confidence were all associated with lower levels of assertive action and higher levels of avoidance; TAI-G interference also was associated with higher levels of considerate action (Buchwald & Schwarzer, 2004). Moreover, when employing multiple regression, interference at T1 predicted lower levels of assertive action and higher levels of avoidance at both T2 and T3 (Buchwald, 2002). Thus, findings indicate that, when controlling for overlap between test anxiety components, worry and interference may show opposite relationships with avoidance coping.

Although these findings indicate that main dimensions of test anxiety may show differential relationships with ways of coping, the overall pattern of results also shows some inconsistencies. Worry, for example, showed a negative correlation with problem-focused coping T1 and a positive correlation with avoidance coping in Zeidner's (1996) study, but a positive correlation with danger control by means of productive study behavior in Rost and Schermer's (1996) study, and a negative association with avoidance coping in Buchwald's (2002) study. Finally, some studies found that the

different dimensions of test anxiety--notably worry and emotionality--showed the same, or very similar, correlation patterns with ways of coping. This may, however, be due to the high overlap between the dimensions of test anxiety. (Worry and emotionality, for example, may show correlations of up to .70; Musch & Bröder, 1999.) Consequently, when only zero-order correlations are reported, this overlap may obscure differences between the dimensions of test anxiety and coping strategies that would otherwise be more apparent, as was demonstrated by Buchwald's (2002) findings, for example.

Therefore, the aim of the present study was to reassess the relationships between dimensions of test anxiety and ways of coping and, in particular, to investigate whether--when controlling for overlap between test anxiety dimensions--worry and emotionality on the one hand and worry and interference on the other show different associations with students' ways of coping with pre-exam anxiety and uncertainty.

## Method

### Participants

A sample of  $N = 162$  students (75 male, 87 female) was recruited at the Martin Luther University of Halle-Wittenberg, a mid-size university in eastern Germany. Mean age was 23.6 years ( $SD = 3.4$ ; range = 18-41 years). All participants volunteered in exchange for a lottery ticket for a chance to win 100 German marks (approx. 50 US dollars) and completed a set of questionnaires that also included the measures described below.

### Measures

Test anxiety. As a multidimensional measure of test anxiety, the TAI-G (Hodapp, 1991) was implemented. The TAI-G comprises 30 items subsumed to four subscales, a 10-item scale measuring worry (e.g., "I am thinking about the consequences

of failing"), an 8-item scale measuring emotionality (e.g., "My heart is pounding"), a 6-item scale measuring interference (e.g., "I'm preoccupied by other thoughts, and thus distracted"), and a 6-item scale measuring lack of confidence (e.g., "I'm confident concerning my own performance", reverse keyed; see Hodapp, 1995, p. 101). As the TAI-G was originally developed for application with school students, two items containing school-specific content (items 2 and 21) were modified to apply to university students. Students were instructed that the inventory referred to the thoughts and feelings they generally experienced in an examination situation (tests, written exams, oral exams). Participants responded to items on a four-point scale ranging from "almost never" (1) to "almost always" (4). Principal component analysis of the 30 items resulted in four eigenvalues  $> 1$ . The results of parallel analysis (Horn, 1965; see Zwick & Velicer, 1986) using the "RanEigen" program (Enzmann, 1997) indicated that four factors should be retained; after varimax rotation, all items showed high principal loadings on the expected factor. With a Cronbach's alpha of .95 for the total score and Cronbach's alphas between .81 and .92 for the subscales, all TAI-G scales displayed high reliability.

Coping. As a multidimensional measure of coping, participants responded to the "Bewältigung von Angst und Unsicherheit im Vorfeld wichtiger Prüfungen" measure [Coping with Pre-Exam Anxiety and Uncertainty, COPEAU; Stöber, 2002]. Based on items from the COPE inventory (Carver *et al.*, 1989; German version: Vollrath, 2000) and from the coping scales of the DAI (Rost & Schermer, 1997), this measure comprises 21 items subsumed to three 7-item scales that capture coping by means of (a) task-orientation and preparation, (b) seeking social support, and (c) avoidance (see Appendix for further details, instruction, and items). Participants responded to items on

a six-point scale ranging from "definitely not true" (1) to "definitely true" (6). Principal component analysis of the 21 items resulted in four eigenvalues  $> 1$ . The results of parallel analysis using "RanEigen" indicated that three factors should be retained; after varimax rotation, all items showed high principal loadings on the expected factor. With Cronbach's alphas between .75 and .87, all COPEAU scales displayed satisfactory reliability.

### Results

Because Zeidner (1996) found substantial gender differences in ways of coping with test anxiety, the first analysis considered gender. To this end, two separate one-way between-groups MANOVAs were computed with gender (male, female) as the independent variable: the first with the four TAI-G subscales as dependent variables, and the second with the three coping scales as dependent variables. When applying Wilks' criterion, gender showed a significant overall effect on both the test anxiety subscales,  $F(4, 157) = 7.71$ , and the coping scales,  $F(3, 158) = 12.80$ ,  $ps < .001$ . Consequently, univariate ANOVAs were computed to investigate gender differences for the individual scales (Table 1). In line with previous findings (e.g., Hodapp, 1991), female students showed higher TAI-G total scores than male students. With respect to the four dimensions of test anxiety, female students showed higher scores for worry and emotionality in particular. They also scored higher on lack of confidence, though to a lesser degree. In contrast, there was no significant gender difference for interference. With respect to coping with pre-exam anxiety and uncertainty, female students reported significantly more task-orientation and preparation, more social support seeking, and less avoidance than male students. The level of social support seeking, in particular, was considerably higher in female students than in male students, corroborating previous

findings on gender differences in test anxiety and coping (e.g., Aysan, Thompson, & Hamarat, 2001).

Next, zero-order correlations were computed. Because the results of the MANOVAs pointed to possible gender differences, correlations were computed for male and female students separately. When correlations were compared using the "Significance of Corr" module of R. Schwarzer's (1991) meta-analysis programs, 5 of the 28 correlations differed between male and female students at  $p < .05$ . Because only 1.4 of the correlations (i.e., 5% of all correlations) would have been expected to differ significantly by chance, data were not collapsed across gender. Instead, all correlations were analyzed separately for the two genders.

When zero-order correlations were inspected (Table 2), results showed that overall test anxiety was related only to coping by seeking social support, with high overall test anxiety being associated with more social support seeking in both male and female students. However, when the individual components of test anxiety were inspected, differences emerged in their specific relations to ways of coping, despite high intercorrelations between the components of test anxiety. Moreover, the pattern of correlations differed between male and female students. Whereas worry and emotionality were significantly related to seeking social support in both male and female students, these two dimensions were significantly related to task-orientation and preparation in female students only. Male and female students also showed differences with respect to interference. In male students, interference was significantly related to avoidance coping and low task-orientation and preparation, whereas in female students, interference was significantly related to seeking social support. Finally, lack of confidence was significantly related to avoidance coping, but only in female students.

To take account of the high intercorrelations between the dimensions of test anxiety, partial correlations were computed between the coping scales and each dimension of test anxiety while controlling for the other three dimensions of test anxiety. The resulting partial correlations displayed an even more differentiated pattern of (gender-)specific relationships between the dimensions of test anxiety and ways of coping with pre-exam anxiety and uncertainty (Table 3).<sup>1</sup> In male students, after controlling for overlap between the dimensions of test anxiety, only emotionality still showed significant relationships with social support seeking, whereas the correlation between worry and social support seeking became nonsignificant. In female students, the correlation between worry and social support seeking also became nonsignificant after controlling for overlap. However, both worry and emotionality still showed significant relationships with task-orientation and preparation. Moreover, after controlling for overlap, worry in female students emerged to be significantly related to low avoidance coping. With respect to interference, the two genders showed the same pattern of relationships after controlling for overlap between the components of test anxiety. In contrast to the zero-order correlations, interference was significantly related to avoidance coping and low task-orientation and preparation in both male and female students. Finally, as in the zero-order correlations, lack of confidence was only significantly related to avoidance coping in female students.

### Discussion

In sum, the present findings indicate that the different dimensions of test anxiety show (gender-)specific relationships with the ways that students cope with pre-exam anxiety and uncertainty. When dimensions of test anxiety were inspected individually while controlling for overlap between dimensions, results showed that (a) worry was

related to task-orientation and preparation and low avoidance coping in female students, (b) emotionality was related to seeking social support in male students and to task-orientation and preparation in female students, (c) interference was related to avoidance and low task-orientation and preparation in both genders, and (d) lack of confidence was related to avoidance coping in female students. Thus, the study indicates that worry and emotionality may display specific relationships with coping when controlled for overlap. Moreover, the study indicates that worry and interference may show opposite correlations with respect to task-orientation and preparation and avoidance: in female students, worry was associated with higher levels of task-orientation and preparation and lower levels of avoidance coping, whereas interference was associated with lower levels of task-orientation and preparation and higher levels of avoidance coping. Thus, Sarason's (1984) assertion that it is important to differentiate between these two cognitive dimensions of test anxiety seems to be valid not only with respect to performance, but also with respect to ways of coping. Finally, it should be noted that lack of confidence was only weakly related to ways of coping with pre-exam anxiety and uncertainty: lack of confidence was related only to avoidance coping, and only in female students. It may be that lack of confidence is not a component of test anxiety itself, but rather very closely related to test anxiety, as suggested by a recent validation study of the TAI-G. When confirmatory factor analysis was performed with the four TAI-G subscales and academic self-efficacy, worry, emotionality, and interference were determined by a common second-order factor labeled "test anxiety," whereas lack of confidence and academic self-efficacy were determined by a common second-order factor labeled "self-esteem" (Keith *et al.*, 2003). Even though the two second-order factors were highly correlated ( $-.82$ ), worry, emotionality, and interference may be

more closely related to test anxiety responses--and thus to coping with anxiety--than lack of confidence.

Whereas the positive correlation of worry with task-orientation and preparation in female students dovetails with previous findings that have shown worry to be positively correlated with problem-focused ways of coping (Blankstein *et al.*, 1992; Rost & Schermer, 1997), the negative correlation of worry with avoidance in female students deserves some consideration. On the one hand, this result challenges previous findings of a positive correlation between worry and avoidant ways of coping (Blankstein *et al.*, 1992; Rost & Schermer, 1997; Zeidner, 1996). On the other hand, this result is in line with the findings of Buchwald's (2002) longitudinal study, which indicate that worry is predictive of low avoidance coping. Moreover, the finding that female students with higher levels of test-anxious worry report less avoidance coping and more task-orientation and preparation corresponds with findings from research on general worry, which show that many people consider worrying to be a kind of problem-solving strategy and perceive it to foster motivation and stimulate preparatory and analytical thinking (Tallis, Davey, & Capuzzo, 1994).

In addition, it may be valuable to compare the present results with Zeidner's (1996) findings. Although Zeidner's study had a similar focus (coping with pre-exam anxiety), investigated a similar sample (college students), and employed similar measures (TAI, COPE) to the present study, it found a positive correlation between worry and avoidance coping, whereas the present study found worry to be associated with low avoidance. One can only speculate as to the reasons for this discrepancy. However, one important difference between Buchwald's (2002) study and the present study on the one hand and Zeidner's (1996) study on the other may have some



explanatory potential here, namely that both Buchwald (2002) and the present study used the TAI-G (Hodapp, 1991) to measure worry, whereas Zeidner (1996) used the TAI (Spielberger, 1980). Inspection of the eight items of the TAI worry scale reveals that only two items refer to worry (items 5 and 17). The other items may in fact tap interference: two items directly mention "interference" (items 3 and 7), and the other four items mention distracting and blocking cognitions and reactions that disturb or interrupt performance. Following Hodapp (1991, 1995), all four items describe interference rather than worry. Thus, the TAI worry scale seems to confound worry and interference, and may in fact place greater emphasis on the latter component. Consistent with this line of reasoning, the correlation pattern that Zeidner (1996) found for TAI worry closely corresponds to the correlation pattern that the present study found for TAI-G interference, that is, a negative correlation with problem-focused coping and a positive correlation with avoidance. Thus, the discrepancy between the present findings and Zeidner's (1996) findings on worry may be attributable to the TAI worry scale not clearly differentiating worry from interference.

Limitations of the present study pertain to three main points. First, the present study covered only three ways of coping: task-orientation and preparation, seeking social support, and avoidance. Whereas these strategies may represent the three major types of coping--problem-focused coping, emotion-focused coping, and avoidance coping--future studies should also include other adaptive and nonadaptive ways of coping with test situations (e.g., Zeidner, 1996, 1998). Second, the present findings may be specific to the ways that students cope in the pre-examination phase (i.e., the learning and preparation phase) and may not be generalizable to the examination phase itself. This may apply particularly to coping by seeking social support--a strategy that is

unlikely to be practicable during an exam. Rather, it would be considered cheating and might lead to disqualification and failure. Finally, the present findings are cross-sectional, meaning that they do not permit causal interpretations. Consequently, it remains an open question as to whether the ways that students usually experience test anxiety are a cause or an effect of the ways that they cope with anxiety and uncertainty in the run-up to an important exam. For interference, for example, it seems more plausible that low levels of task-orientation and preparation and high levels of avoidance prior to exams will lead to more interference during exams (because test-relevant material has not been sufficiently prepared). At least for interference, this would suggest a causal path running from pre-exam coping strategies to the experience of test anxiety during exams, not vice versa.

Notwithstanding these limitations, the present findings have important implications for test anxiety research as they demonstrate that different dimensions of test anxiety may indeed show specific relationships with different ways of coping. Moreover, they show that gender differences in coping with test anxiety remain an issue that is worthy of further observation and exploration. While gender differences in test anxiety and its components have been systematically explored in both school-aged and college students across cultures (see Zeidner, 1998), gender differences in coping with test anxiety still merit systematic attention. Thus, the present findings encourage future studies to take a new, more differentiated look at the interdependent relationships between male and female students' experience of test anxiety and their coping strategies before, during, and after important exams, and how this may influence their performance.

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Footnotes

<sup>1</sup>When canonical correlations were computed, the pattern of results was exactly the same as that of the partial correlations.



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Table 1

Means: Gender Differences

Variable	Males		Females		F(1, 160)
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	
<u>Test anxiety</u>					
TAI-G total score	64.50	13.83	75.00	18.11	16.77***
Worry	24.79	5.79	28.46	7.03	12.85***
Emotionality	16.21	5.23	21.07	6.40	27.47***
Interference	10.20	3.04	10.89	3.79	1.62
Lack of confidence	13.31	3.59	14.58	4.15	4.32*
<u>Coping with pre-exam anxiety</u>					
Task-orientation and preparation	30.49	5.53	32.98	4.72	9.54**
Seeking social support	26.43	7.14	31.98	5.30	32.06***
Avoidance	21.16	5.79	19.10	6.13	4.77*

Note. N = 162 (75 males, 87 females). TAI-G = German Test Anxiety Inventory.

\*p < .05. \*\*p < .01. \*\*\*p < .001.

Table 2

Zero-Order Correlations

Variable	Correlation							
	1	2	3	4	5	6	7	8
<u>Test anxiety</u>								
1. TAI-G total score	—	.90***	.88***	.80***	.76***	.21	.31**	.02
2. Worry	.80***	—	.71***	.64***	.56***	.27*	.26*	-.15
3. Emotionality	.88***	.60***	—	.60***	.53***	.29**	.31**	-.02
4. Interference	.63***	.25*	.44***	—	.58***	-.04	.29**	.15
5. Lack of confidence	.75***	.38***	.58***	.52***	—	.06	.18	.25*
<u>Coping with pre-exam anxiety</u>								
6. Task-orientation and preparation	.00	.15	.07	-.35**	-.04	—	.10	-.42***
7. Seeking social support	.41***	.37***	.45***	.10	.25	.27*	—	-.06
8. Avoidance	.18	-.03	.16	.40***	.14	-.39***	.11	—

Note. TAI-G = German Test Anxiety Inventory. Below diagonal: males ( $n = 75$ ); above diagonal: females ( $n = 87$ ).

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Table 3

Partial Correlations

	Test anxiety <sup>a</sup>							
	Worry		Emotionality		Interference		Lack of confidence	
	M	F	M	F	M	F	M	F
Coping with pre-exam anxiety								
Task-orientation and preparation	.14	.23*	.12	.25*	-.42***	-.31**	.06	-.06
Seeking social support	.14	.02	.30**	.15	-.13	.13	.02	-.04
Avoidance	-.15	-.37***	.10	-.01	.38**	.22*	-.09	.33**

Note. M = males ( $n = 75$ ), F = females ( $n = 87$ ).

<sup>a</sup>Third-order partial correlations: Correlation of each test anxiety dimension while controlling for the other three dimensions.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Appendix

Coping with Pre-Exam Anxiety and Uncertainty (COPEAU):

Instruction and Items

Everyone experiences anxiety and uncertainty **in the run-up to important examinations** (such as tests, written exams, and oral exams). The following statements refer to how you attempt to cope with this anxiety and uncertainty.

In the run-up to important exams, ...

Task-Orientation and Preparation

1. I think about how I can best prepare for the exam.
2. I concentrate on how I'm going to deal with the exam and, if necessary, let other things slide.
3. I cut back on my leisure time to prepare for the exam.\*
4. I take extra time to prepare for the exam.
5. I do what needs to be done, one step at a time.
6. I put other activities to one side and concentrate on the exam coming up.
7. I concentrate all my efforts on the exam.

Seeking Social Support

1. I ask people who have had similar experiences what they did/would do in this situation.
2. I discuss my feelings with someone.
3. I try to get advice from someone about what to do.
4. I attempt to get the emotional support of friends or relatives.
5. I try to get sympathy and understanding for my situation from others.
6. I talk to someone about how I feel.

7. I talk to others to find out more about the exam.

Avoidance

1. I convince myself that it's not all bad.\*

2. I put thoughts of the exam out of my mind.\*

3. I try not to think about the exam.\*

4. I turn to other activities for diversion.

5. I persuade myself that I don't care about the exam.

6. I go to the movies or watch TV so I don't think about the exam so much.

7. I make a conscious effort to think about something else.\*

Note. \*Items taken/adapted from the DAI (Rost & Schermer; 1997); all other items adapted from the COPE inventory (Carver et al., 1989) as follows: Task-Orientation and Preparation contains items from the COPE subscales "active coping," "planning," and "suppression of competing activities" and the DAI subscale "danger control by means of productive study behavior;" Seeking Social Support contains items from the COPE subscales "seeking social support for instrumental reasons" and "seeking social support for emotional reasons"; Avoidance contains items from the COPE subscales "denial" and "mental disengagement" and the DAI subscale "anxiety suppression by distraction and trivialization."