

## GENDER DIFFERENCES IN ANXIETY: AN INVESTIGATION OF THE SYMPTOMS, COGNITIONS, AND SENSITIVITY TOWARDS ANXIETY IN A NONCLINICAL POPULATION

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**Abstract.** Past research has demonstrated that anxiety disorders represent a significant mental health concern. A review of the literature in the area indicates that there is limited information regarding gender differences on the basis of cognitions in clinical or nonclinical samples. The current investigation sought to determine whether any observable gender differences existed in the expression of symptoms, cognitions, and anxiety sensitivity for a nonclinical sample of 48 males and 49 females. Multivariate analyses of variance revealed support for gender differences in the expression of physiological hyperarousal, catastrophic cognitions and a general level of anxiety sensitivity in a nonclinical population. The strengths, limitations, and directions for future research are discussed.

*Keywords:* Anxiety, gender, catastrophic cognitions, anxiety sensitivity, nonclinical.

### Introduction

While anxiety is a universally shared human experience, past research has demonstrated that anxiety disorders represent a significant mental health concern (Australian Bureau of Statistics [ABS], 1998). Research conducted in this area has demonstrated that cognitive factors play an important role in the development and maintenance of anxiety disorders (e.g., Beck, 1988; Clark, 1986). Cognitive theorists have postulated that individuals with an anxiety disorder appear to be particularly sensitive to a systematic bias in cognitive processing due to a cognitive misinterpretation of the physical or psychosocial experience of anxiety as catastrophic or dangerous. This explanation emphasizes the catastrophic misinterpretation and the resulting catastrophic cognitions as a salient feature in the aetiology of anxiety disorders. Consistent with the cognitive theory of anxiety disorders is the concept of anxiety sensitivity (AS). AS is regarded as a fear of anxiety-related sensations and is thought to arise from the individual's belief that such sensations have harmful social, psychological, or somatic consequences (Reiss & McNally, 1985).

A literature review in the area of anxiety disorders indicates that there is limited information regarding gender differences on the basis of cognitions in clinical or nonclinical

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samples. Of the studies available, Hewitt and Norton (1993) found that females from the clinical population reported a significantly greater concern regarding the cognitive and somatic experience of anxiety than their male counterparts. Stewart, Taylor and Baker (1997) found that among undergraduate university students, females reported a slightly but significantly higher rate of AS and appeared to be more fearful of the physical symptoms of anxiety than males. To date, however, gender differences have not been evaluated on the basis of catastrophic cognitions and misinterpretation. Thus, bearing in mind the literature that supports the cognitive models of anxiety, it is important not only to explore possible gender differences on the basis of anxiety symptoms and anxiety sensitivity, but also to explore gender differences on the basis of catastrophic ideation. As such, the current study hypothesizes that females will report significantly higher concern regarding anxiety symptoms, catastrophic cognitions and anxiety sensitivity than males. Second, it is hypothesized that there will be observable gender differences in the types of anxiety symptoms, catastrophic cognitions and anxiety sensitivity.

## Method

### *Participants*

A total of 97 first year undergraduate students from the Queensland University of Technology participated in the study. The sample was 49.48% male, with a mean age of 27.28 years ( $SD = 8.11$  years) and 50.52% female, with a mean age of 27.96 years ( $SD = 9.71$  years).

### *Measures*

A battery of four paper and pencil questionnaires comprising the Beck Anxiety Inventory (BAI), Catastrophic Cognitions Questionnaire—Modified (CCQ-M), Anxiety Sensitivity Index (ASI), and Marlowe-Crowne Social Desirability Scale (MCSDS) was administered to each participant.

### *Procedure*

All questionnaires were arranged in random order to avoid order effects. The participants completed the questionnaires in approximately 30 minutes and were debriefed at the end of each testing session. All data were collected over a period of 3 weeks.

## Results

Preliminary analyses using independent groups *t*-tests failed to find a significant difference between the males ( $M = 27.31$ ,  $SD = 8.27$ ) and females ( $M = 28.16$ ,  $SD = 9.71$ ) ages,  $t(95) = .464$ , n.s.; as well as the males ( $M = 14.75$ ,  $SD = 2.86$ ) and females ( $M = 14.30$ ,  $SD = 3.24$ ) total scores on the MCSDS,  $t(95) = -.714$ , n.s. Pearson correlation analyses conducted both within and across gender on the MCSDS and anxiety measures found that, whilst social desirability was not significantly correlated within gender,  $r = .073$ , n.s., female social desirability was significantly negatively correlated with the total ( $r = -.337$ ,  $p < .05$ ), somatic

( $r = -.352, p < .05$ ), and social ( $r = -.307, p < .05$ ) subscales of the ASI as well as the somatic subscale of the BAI ( $r = -.329, p < .05$ ). Male social desirability was not significantly related to the anxiety measures.

To investigate whether females reported experiencing significantly higher level of anxiety symptoms, catastrophic cognitions and anxiety sensitivity, a between-groups MANOVA was conducted with the total scores on the BAI, CCQ-M and ASI. A significant multivariate effect was found among the males and females on the dependent measures,  $F(3, 93) = 6.397, p < .01$ . Examination of gender differences using ANOVAs for each dependent variable was conducted as follow-up tests with the Type I error rate per comparison set at .05 for each analysis. Significant differences between the males and females were found on the dependent measures of the BAI,  $F(1, 95) = 9.555, p < .01$ ; CCQ-M,  $F(1, 95) = 14.867, p < .001$ ; and ASI,  $F(1, 95) = 4.265, p < .05$ . However, when a Bonferroni correction of .016 per comparison was set, the difference between males and females on the total score of the ASI was not significant. Means, standard deviations, and results of univariate F-tests are provided in Table 1.

To investigate whether females reported experiencing a significantly higher severity level of cognitive and somatic anxiety symptoms, a between-groups MANOVA was conducted using the subscale scores of the BAI. A significant multivariate effect was found between the males and females on the dependent measures,  $F(2, 94) = 5.677, p < .01$ . Follow-up tests using ANOVAs revealed a significant difference between the males and females on both the cognitive subscale,  $F(1, 95) = 11.414, p < .01$ , and somatic subscale,  $F(1, 95) = 4.854, p < .05$ , of the BAI. However, when a Bonferroni correction of .025 was set for these

**Table 1.** Means, standard deviations and univariate results for the male and female groups on the total and subscale scores BAI, CCQ-M, and ASI following MANOVA analysis

Scales	Male group ( $n = 48$ )		Female group ( $n = 49$ )		Univariate F $df(1, 95)$
	Mean	SD	Mean	SD	
<b>BAI</b>					
Total	9.16	6.17	13.75	8.26	9.55**
Cognitive	4.68	3.45	7.34	4.25	11.41**
Somatic	4.47	3.74	6.40	4.80	4.85*#
<b>CCQ-M</b>					
Total	58.43	14.54	68.69	11.51	14.86***
Emotional	15.08	4.25	18.36	4.55	13.34***
Physical	23.47	6.88	27.18	3.72	10.91**
Mental	19.87	5.19	23.14	5.11	9.73**
<b>ASI</b>					
Total	18.14	9.95	22.71	11.74	4.26*#
Physical	8.10	6.15	10.46	6.77	NS
Psychological	2.16	1.97	3.12	3.06	NS
Social	6.93	2.44	7.85	2.79	NS

\* $p < .05$ , \*\* $p < .01$ . \*\*\* $p < .001$ . # Not significant with Bonferroni correction

follow-up tests, the difference between the males and females on the somatic subscale of the BAI was not significant.

In order to investigate whether females reported experiencing the emotional, physical, and mental cognitive consequences of anxiety as significantly more catastrophic and dangerous, a between-groups MANOVA was conducted using the subscale scores of the CCQ-M. A significant multivariate effect was found between males and females on the dependent measures,  $F(3, 93) = 5.232, p < .01$ . Follow-up tests using ANOVAs revealed significant gender differences on the CCQ-M ‘‘Emotional Catastrophes’’ subscale,  $F(1, 95) = 13.349, p < .001$ ; CCQ-M ‘‘Physical Catastrophes’’ subscale,  $F(1, 95) = 10.918, p < .01$ ; and CCQ-M ‘‘Mental Catastrophes’’ subscale,  $F(1, 95) = 9.733, p < .01$ . Use of Bonferonni correction still found these results significant at an alpha level of .016. Finally, a between-groups MANOVA using the social, somatic and psychological subscales of the ASI failed to reveal a significant multivariate effect,  $F(3, 93) = 1.479, n.s.$

### Discussion

The results obtained in the current study provide support for gender differences in the expression of physiological hyperarousal, catastrophic cognitions and a general level of anxiety sensitivity in a nonclinical population. Significant gender differences were found using the total score as well as the cognitive and somatic subscales of the BAI. This finding is consistent with previous research (e.g., Hewitt & Norton, 1993), which reports that although females endorse higher levels of anxiety symptoms overall, they also score significantly higher than males on both the cognitive and somatic subscales of the BAI. In contrast, the finding that females, compared to males, misinterpreted anxiety related cognitions as personally more catastrophic or dangerous and reported greater concern regarding the unpleasant emotional, physical and mental consequences of anxiety is a new addition to the literature. Whilst some authors (e.g., Beck, 1988; Clark, 1986) have argued that cognitions relating to danger or threat are significant predictors in the development and maintenance of anxiety, it is important to note that measures such as the CCQ-M have only been used in order to assess the element of dangerousness relevant to an individual’s overactive cognitive pattern. As such, this study has demonstrated that within the nonclinical population, a significant gender difference exists between males’ and females’ self-report of cognitions relating to danger or threat. Finally, the finding that females scored significantly higher than males when using the total scores of the ASI, yet not on the subscale scores of the ASI, is partially inconsistent with Stewart et al.’s (1997) university student sample results. However, it is unclear whether this lack of difference for the subscales of the ASI reflects a true non-significant result due to the relatively weak, yet significant negative relationships between two ASI subscales and females’ level of social desirability. It is possible that females underreported their concern of the social and somatic consequences of anxiety-related sensations.

In summary, the current study has provided empirical verification that there are observable gender differences in male and females’ self-report of anxiety symptoms, catastrophic cognitions, and overall anxiety sensitivity. However, the results obtained await further replication as this study used a small sample of university students, who do not adequately reflect the wider community. Further, it is unclear whether the absence of gender differences on the somatic subscale of the BAI and the total score of the ASI, as a result of Bonferonni correc-

tions, reflects a true non-significant finding or whether it is the result of the sample size of the study. It is therefore important to replicate the study with larger community and clinical samples and examine why these differences occurred. Replicating this study and including measures relating to individual coping styles, learning history, social desirability, personality traits, and major life-events has the potential to offer important explanations for the cognitive and somatic differences observed in the current study.

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