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The relationship between cognitive failures, psychoneurotic symptoms and sex

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ABSTRACT – As Broadbent et al's (1) original analysis of the relationship between the Cognitive Failures Questionnaire (CFQ) and the Middlesex Hospital Questionnaire (MHQ) was conducted on an altered version of the MHQ, the present study undertook this same analysis using the full MHQ. In addition, the relationship was examined to see if it was mediated by the differences in the scoring of males and females on each questionnaire. Our results support and strengthen Broadbent et al's conclusion that high rates of cognitive failure are associated with psychoneurotic symptoms. The sex difference on the CFQ is discussed in terms of vulnerability to stress to account for the higher incidence of psychoneurotic symptoms in females.

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Broadbent et al. (1) have recently published the Cognitive Failures Questionnaire (CFQ) which measures self-reported failures in perception, memory and motor functions during everyday life. To establish the relationship between cognitive failures and a range of psychoneurotic symptoms, the authors reported correlations between the CFQ and the Middlesex Hospital Questionnaire (MHQ) (2).

However, these correlations were calculated with an altered version of the MHQ: "The modifications were mostly small changes of wording to make the questionnaire acceptable for industrial use, the elimination of the phobic and hysteria scales for similar reasons, and in particular the change of all possible questions to refer to the last six weeks", (1). Not only does this threaten the test validity of the CFQ, but the removal of the phobic and hysteria subscales reduces the number of items from forty-eight to thirty-two. Despite these changes, the authors discuss the correlation between the CFQ and the "total" MHQ. Berndt (3) has reported the factor analysis of a subscale of the Beck Depression Inventory (4) when it was completed alone and as part of the total depression inventory (5). The two methods of completion produced different factor patterns, indicating that different dimensions of depression were being assessed. This suggests that the removal of items from a questionnaire may influence subjects' responses on the remaining items. Such a possibility also questions the validity of Broadbent et al's results.

Sex differences on the CFQ have not been examined despite the fact that it has been used in a variety of contexts. It has been used to investigate electroconvulsive therapy (6), compulsive checking (7), memory performance (8), stressful situations (9, 10), absent-mindedness (11) and accidents (12). Given the frequently reported sex difference on MHQ scores (2, 13–15), particularly for the phobic subscale, and the reported association between the CFQ and MHQ, the present study also sought to examine sex differences in the reporting of cognitive failures.

Table 1
MHQ correlation with the CFQ

	Broadbent et al. (1982) (n = 428)	Present study (n = 342)
MHQ total	0.367	0.37
Anxiety	0.31	0.35
Obsessional (persons)	0.10	-0.09*
Obsessional (symptoms)	0.29	0.28
Somatic	0.27	0.29
Depression	0.34	0.16
Phobia	-	0.23
Hysteria	-	0.32
Adjusted MHQ total (Phobia and hysteria)	-	0.33

1. All probabilites are two-tailed with $P < 0.01$ except *($P < 0.05$).

Method

Three hundred and forty two (153 females and 189 males, mean age 18.3 S.D. = 2.2) first year students completed the CFQ and MHQ, the order of completion being randomised across subjects.

The CFQ is a 25 item self-rating questionnaire which requires subjects to indicate how often in the past 6 months they have experienced everyday errors in cognition on a five point scale ranging from "never" to "very often".

The MHQ is a 48 item self-rating questionnaire purporting to measure aspects of psychoneurotic symptoms and includes anxiety, depression, hysteria, phobias, obsesssionality (both personality and symptoms) and somatic subscales assessed by binary decisions and three point scales.

Results

Broadbent et al. (1) reported the tau coefficients for six groups of subjects (Total n = 428). Using Fisher's r to z transformations, these groups were collapsed together and the mean tau coefficients for the MHQ and its subscales, with the CFQ were calculated. These coefficients are shown in the left hand column of Table 1. The tau coefficients from the present study are also shown in Table 1 and indicate a similar degree of correlation with the CFQ.

The mean scores (and standard deviations) for the CFQ and MHQ from the present study were 40.4 (13.0) and 26.4 (10.8) respectively. The results of Mann-Whitney U tests comparing the scores of males and females are shown in Table 2.

To determine whether the association between MHQ and CFQ scores was mediated by females scoring higher than males on each of these scales, partital correlations were computed. This analysis revealed very little effect upon the correlations. Thus the relationship between CFQ and MHQ scores persists when sex differences are controlled for.

Discussion

The correlations reported in the present study are very similar to the mean correlations calculated from Broadbent et al's original study. Each of the MHQ subscales, and the total MHQ correlated weakly but significantly with the CFQ. The subscales omitted by Broadbent et al. correlated with the CFQ to an equivalent extent as those

Table 2
Sex differences on the CFQ and MHQ (Mann-Whitney U Test)

	Males (n = 189)	Females (n = 153)	Z-score	P
MHQ total	24.1 (SD 10.5)	29.2 (SD 10.9)	-4.49	0.000
Anxiety	3.9 (SD 3.1)	5.9 (SD 3.5)	-5.35	0.000
Obsessional (persons)	2.9 (SD 2.3)	3.1 (SD 2.3)	-0.83	NS
Obsessional (symptoms)	2.6 (SD 1.7)	2.7 (SD 1.6)	-1.04	NS
Somatic	3.2 (SD 2.5)	3.6 (SD 2.5)	-1.66	NS
Depression	6.1 (SD 3.2)	6.1 (SD 3.4)	-0.04	NS
Phobia	2.7 (SD 2.1)	4.3 (SD 2.7)	-5.67	0.000
Hysteria	2.7 (SD 2.5)	3.5 (SD 2.5)	-3.57	0.000
CFQ	38.9 (SD 12.7)	42.3 (SD 13.3)	-2.12	0.03

All probabilities are two-tailed.

included in their original study. Thus despite Broadbent et al's modification of the MHQ, their conclusion that high rates of cognitive failures are positively associated with psychoneurotic symptoms is supported by our own results, and strenghtened by the inclusion of the phobia and hysteria subscales.

An interesting finding in the present study is the raised level of CFQ and MHQ scores in females. The notion of higher rates of psychoneurotic symptoms in females is well established (14, 15), and yet remains unresolved (16). Although Boardbent et al. did not report sex differences in their study, they have suggested that high CFQ scores are a vulnerability factor making people less able to resist the effects of stress. Specifically, Broadbent et al. cite a study by Katherine Parkes in which female nurses with high CFQ scores prior to working on a stressful ward reported more psychoneurotic symptoms than female nurses with low CFQ scores. However, there was no such relationship for nurses working on a non-stressful ward. This suggests that a high rate of cognitive failures coupled with stress may result in psychological disturbance. Given that females in the present study scored significantly higher than males on the CFQ, then a stress-vulnerability model may help to explain the higher rates of psychoneurotic symptoms in females.

Batchelor (17) may be correct in arguing that if we knew more about the reason why men and women differed in their psychopathology then we would be closer to understanding the causes of meny mental disorders. Thus a further examination of the sex differences in the CFQ may help to clarify these issues.

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