SELF-REPORTED COGNITIVE FAILURES AND NEUROTIC SYMPTOMATOLOGY

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Summary—Three studies examined the Cognitive Failures Questionnaire (CFQ) and its psychopathological correlates. In Study 1, the psychometric qualities of the Dutch translation of the CFQ were evaluated in a student sample. Internal consistency and test–retest stability were found to be satisfactory. Furthermore, CFQ was positively correlated with anxiety symptoms, even when the influence of traditional trait variables (i.e., neuroticism and trait anxiety) was partialled out. Study 2 examined the CFQ as a predictor of treatment outcome in spider phobia. No evidence was found to suggest that high CFQ scores are associated with a less favourable treatment outcome. Also, spider phobics had CFQ scores in the normal range. Study 3 evaluated the CFQ in a mixed sample of anxiety disordered and depressive outpatients. Depressive patients, but not anxiety disordered patients, were found to have heightened CFQ scores. Overall, CFQ scores were positively associated with symptom severity. Yet, there were no indications that patients with high CFQ scores profit less from treatment than those with low CFQ scores. Taken together, the results provide support for the view that the CFQ taps daily cognitive routines that are undermined by anxiety and depression. However, the findings do not point to the CFQ being a cognitive vulnerability measure that is related to treatment success. Copyright © 1996 Elsevier Science Ltd

INTRODUCTION

It is now a well established fact that neurotic disorders are accompanied by specific cognitive dysfunctions (Eysenck, 1992). For example, anxiety disorders are characterized by an attentional bias, i.e., a heightened readiness to encode threat-related information. In contrast, depression is associated with a memory bias that favours the recall of negative rather than positive memories (e.g., Williams, Watts, MacLeod & Mathews, 1988). These biases in attention and memory occur automatically. That is to say, they are not under intentional control and can even be regarded as phenomena that intrude and disrupt controlled cognitive processes (Eysenck, 1992; MacLeod, 1991). Recent studies also suggest that cognitive biases are not merely epiphenomena of neurotic disorders, but play a significant role in the development and maintenance of these disorders. For example, in a longitudinal study, MacLeod and Hagan (1992) found that an attentional bias towards threat-related material was the best predictor of emotional distress elicited by a subsequent stressful life event (i.e., a diagnosis of cervical pathology). Similarly, there are some indications that the preponderance of negative memories in depression serves to maintain and intensify depressive mood (e.g., Brittlebank, Scott, Williams & Ferrier, 1993; Dalgleish & Watts, 1990).

The study of attentional and memory processes in neurotic disorders heavily relies on laboratory paradigms drawn from cognitive psychology (e.g., the computerized Stroop task). Obviously, these laboratory tasks are not always available to therapists. Consequently, a questionnaire that assesses cognitive dysfunctions and that can be used as a tool for predicting therapy outcome would be helpful for therapists. One interesting candidate in this context is the Cognitive Failures Questionnaire (CFQ) developed by Broadbent, Cooper, Fitzgerald and Parkes (1982). The CFQ comprises 25 items and measures self-reported frequency of failures in perception/attention (e.g., "Do you fail to notice signposts on the road?")", memory (e.g., "Do you forget appointments?")", and action (e.g., "Do you bump into people?"). Broadbent et al. (1982) summarized evidence to suggest that the CFQ is a stable trait-like measure (i.e., high test–retest correlation) with high internal consistency (i.e., high Cronbach's alpha). They also claimed that the CFQ possesses sufficient external validity. For example, Broadbent et al. (1982) reported that former electroconvulsive shock patients score higher on the CFQ than control subjects. However, it should be added that some
studies have failed to document a reliable correlation between self-reported cognitive failures and objective performance during laboratory tasks (see for a review, Wells & Matthews, 1994).

As to the psychopathological correlates of the CFQ, three remarks are in order. Firstly, while the CFQ does correlate significantly with traditional trait measures such as the neuroticism (N) scale of the Eysenck Personality Inventory (Eysenck & Eysenck, 1964) or the Spielberger trait anxiety scale (Spielberger, Gorsuch & Lushene, 1970), these correlations are weak and suggest that the CFQ is distinguishable from neuroticism and trait anxiety (Broadbent et al., 1982; Matthews & Wells, 1988). Secondly, high scores on the CFQ are associated with neurotic symptoms such as phobia, depression, and obsessionality (Broadbent, Broadbent & Jones, 1986; Broadbent et al., 1982; Gordon, 1985; Hood, MacLachlan & Fisher, 1987; Matthews & Wells, 1988). Thirdly, and most importantly, there is evidence to suggest that CFQ scores predict subsequent symptom levels of anxiety and depression. In a student sample, Power (1988) obtained CFQ as well as anxiety and depression scores on two occasions, four months apart. Initial CFQ scores did predict subsequent anxiety and depression scores, even when the influence of initial symptom levels was cancelled out.

Broadbent et al. (1982) argued that the CFQ taps a vulnerability factor. According to those authors, high CFQ persons are vulnerable to life stress and therefore develop neurotic symptoms when actually exposed to life stress. Germance to this interpretation is their finding that nurses with high CFQ scores report more neurotic symptoms when working on a stressful ward, but not when working on a non-stressful ward. As to the interpretation of this association between CFQ, life stress, and psychological disturbance, Broadbent et al. (1982) speculated that high CFQ persons are less successful at developing active coping strategies when confronted with stress. Alternatively, Power (1988, p. 135) suggested that “the CFQ measures a proneness to the intrusion of automatic processes into ongoing conscious processing”. Under normal, non-stressful conditions, these intrusions would be relatively benign, but in stressful situations, the intrusions would acquire a threatening quality. Note that an interpretation of high CFQ in terms of automatic processes that disrupt normal cognitive functioning comes close to the automatic cognitive biases that have been documented with laboratory tasks in phobic and depressive patients (e.g., Eysenck, 1992).

Thus far, most studies concerned with the correlates of the CFQ have been conducted in normal samples. The question arises whether the CFQ predicts symptom severity and treatment outcome in clinical subjects. Accordingly, the main purpose of the present studies (Studies 2 and 3) was to examine the relationship between CFQ and symptom levels in phobic and depressive patients before and after behavioural treatment. However, before turning to this issue, Study 1 describes psychometric qualities and correlates of the Dutch translation of the CFQ in student samples.

**STUDY 1: CFQ IN NORMAL SUBJECTS**

This study examined the test–retest stability of the CFQ (sample 1), the internal consistency of the CFQ (sample 1, 2, and 3), the association between CFQ and several trait and state measures (sample 2), and the factor structure underlying the CFQ (sample 2 and 3 collapsed).

**Method**

The Dutch translation of the original CFQ (Broadbent et al., 1982) was administered to student samples (see below). The CFQ consists of 25 items measuring the frequency of everyday cognitive lapses. There are three categories of lapses: failures in perception/attention, failures in memory, and failures in action. Subjects are asked to indicate on a 5-point scale (0 = never; 4 = very often) how often they have experienced each cognitive failure in the past months. Consequently, higher CFQ scores reflect a higher frequency of self-reported cognitive failures.

Sample 1 consisted of 30 Limburg University undergraduates (26 women; 4 men; mean age: 21 yr) who completed the CFQ on two occasions, 6 weeks apart.

Sample 2 comprised 101 Amsterdam University undergraduates (69 women; 32 men; mean age: 21 yr). In addition to the Dutch CFQ translation, these subjects completed the neuroticism items of the Eysenck Personality Inventory (EPI-N; Eysenck & Eysenck, 1964), the trait version of the Spielberger State-Trait Anxiety Inventory (STAI-trait; Spielberger et al., 1970), the Depression Symptom Inventory (DSI; Bouman, 1987), the revised version of the Fear Survey Schedule (FSS,
Arrindell, Emmelkamp & van der Ende, 1984), the Anxiety Sensitivity Index (ASI; Reiss, Peterson, Gursky & McNally, 1986), and the Student Worry Scale (SWS; Davey, 1993). While neuroticism scores of the EPI and trait anxiety scores of the STAI provide an index of vulnerability to anxiety (Eysenck, 1992), DSI, FSS, ASI, and SWS scores reflect the extent to which certain anxiety and depression symptoms are actually present. More specifically, the DSI (29 items) asks subjects to what extent they suffer from various depression symptoms (e.g., sleep disturbances), the FSS (64 items) measures self-reported phobic tendencies (e.g., fear of harmless animals), the ASI (16 items) measures fear of bodily sensations (e.g., cardiac acceleration), and the SWS (10 items) asks subjects how much they worry about areas relevant to students (e.g., financial concerns). Higher scores on these questionnaires indicate higher symptom levels.

Sample 3 consisted of an additional group of 149 Limburg University undergraduates (119 women; 30 men; mean age: 22 yr). They only completed the CFQ.

Subjects completed the questionnaires in small groups of approximately 10–25 subjects. Subjects in sample 1 and 3 completed the questionnaires for course credits. Subjects in sample 2 were given a small financial compensation for their participation in the study.

Results

Test–retest stability. The test–retest correlation of CFQ scores in sample 1 was 0.83 \([P < 0.001]\), which is similar to the test–retest correlations that were reported by Broadbent et al. (1982) and Power (1988). Mean scores and standard deviations on occasion 1 and 2 were 42.6 (SD = 8.1) and 40.3 (SD = 8.9), respectively. Cronbach’s alphas were 0.75 and 0.81, respectively. These alphas are comparable to alpha coefficients reported by Broadbent et al. (1982). Coefficient alpha data and mean CFQ scores of sample 1, 2, and 3 are summarized in Table 1.

Association with trait and state (symptom) levels. Table 2 shows Pearson product–moment correlations between CFQ, trait measures of anxiety (i.e., EPI-N and STAI-trait), and state measures of depression and anxiety (DSI, FSS, ASI, and SWS). As can be seen, CFQ correlates significantly with both trait and state measures: the higher the CFQ scores, the higher the trait and state scores. More importantly, however, the positive association between CFQ on the one hand, and anxiety symptom levels on the other hand, remains significant when the influence of neuroticism (EPI-N) and trait anxiety (STAI-trait) is cancelled out through partial correlations. The exception to this rule is the association with depressive symptoms: the correlation between CFQ and DSI drops to an insignificant level when neuroticism and trait anxiety are partialled out.

Factor structure. The CFQ data of sample 2 and sample 3 were collapsed, and subjected to factor analyses (principal components with varimax rotation). The sample size (\(N = 250\)) met the criterion

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</table>

* \(P < 0.05\).

Note: 1 = CFQ, 2 = STAI-trait, 3 = EPI-N, 4 = CFQ while holding STAI-trait constant, 5 = CFQ while holding EPI-N constant, 6 = CFQ while holding STAI-trait and EPI-N constant.
of at least 10 times as many subjects as items (see also Matthews, Coyle & Craig, 1990). First, the 3-factor solution to be expected was examined. However, this analysis revealed no consistent pattern: perception/attention, memory, and action items did not load on separate factors. Next, an exploratory factor analysis was carried out. The scree-plot (Eigenvalues of the first 9 factors were 4.9, 1.9, 1.5, 1.4, 1.3, 1.2, 1.1 and 1.1) clearly suggested a 1-factor solution accounting for 19.4% of the variance.

Discussion

The results of Study 1 can be summarized as follows. Firstly, the psychometric qualities of the Dutch translation of the CFQ are satisfactory: test–retest stability as well as internal consistency are high. Secondly, like previous studies (e.g., Broadbent et al., 1981; Hood et al., 1987; Power, 1988), CFQ scores were found to be related to neurotic symptoms (i.e., phobic anxiety, depressive symptoms, and worrying). The positive and significant association between CFQ and anxiety symptoms remained, even when the influence of trait variables (i.e., neuroticism and trait anxiety) was partialled out. This indicates that CFQ taps a factor that is independent of these traditional trait scales. The fact that the correlation between CFQ and depression disappeared when the influence of these trait scales was cancelled out is consistent with Power’s (1988, p. 140) suggestion that “CFQ is a measure of vulnerability to anxiety but not to depression”.

STUDY 2: CFQ IN SIMPLE PHOBIA

In Study 1, the psychometric qualities of the Dutch translation of the CFQ were found to be encouraging and so Study 2 examined whether the CFQ can be fruitfully applied to a clinical context. More specifically, Study 2 investigated whether CFQ scores are related to symptom severity and, most importantly, treatment outcome in spider phobia.

Method

Subjects. The non-phobic control group consisted of 31 female subjects. Mean age was 28 years (range: 20–40 yr). Non-phobic control subjects were selected through advertisements in newspapers. The control group was comparable with the phobic group in terms of age and educational level. Phobic subjects were 30 female spider phobics who applied for treatment at the Limburg University Spider Phobia Project. Their mean age was 31 years (range: 16–38 yr). All phobic subjects met DSM-III-R criteria for simple phobia.

Procedure. Prior to treatment, phobic subjects completed the CFQ and the Spider Phobia Questionnaire (SPQ; Kllorman, Weerts, Hastings, Melamed & Lang, 1974). The SPQ is a 31-item self-report instrument that measures fear of spiders. Higher scores indicate a higher level of spider fear. Additionally, phobic subjects carried out a Behavioural Approach Test (pre-treatment BAT). The BAT procedure was as follows: phobics entered a room in which a table was located, approx. 3 m in front of the subjects. A jar containing a live spider was placed on the table. Subjects were instructed to approach the spider in a stepwise manner. There were 8 steps, ranging from 1, “walk towards the spider”, to 8, “let the spider walk over your hand”. Following the BAT, subjects underwent a 2.5 hr exposure in vivo treatment as described by Öst (1989).

After one week, subjects returned to the laboratory and SPQ (post-treatment SPQ 1) and BAT (post-treatment BAT 1) data were collected again. Following this, a second exposure session was given. Next, SPQ and BAT measures were obtained once more (post-treatment SPQ 2 and post-treatment BAT 2, respectively).

Non-phobic control subjects came to the laboratory only once. They completed the CFQ and SPQ, and underwent a BAT procedure.

Results

Control vs phobic subjects. Control and spider phobic subjects differed significantly in pre-treatment SPQ [(t(59) = 34.7, P < 0.001)], means being 2.6 (SD = 1.6) and 23.6 (SD = 2.9), respectively. Similarly, control and phobic subjects differed with regard to the pre-treatment BAT [(t(59) = −12.6, P < 0.001)], means being 7.9 (SD = 0.3) and 4.2 (SD = 1.6), respectively. However, there was no
significant difference in CFQ between the two groups \( t(59) < 1.0 \). Mean CFQ scores of control and spider phobic subjects were 38.7 (SD = 9.9) and 38.6 (SD = 9.0), respectively.

The exposure treatment that phobic subjects received was successful in terms of the SPQ and BAT changes that occurred from pre- to post-treatment. For example, paired t-tests showed that post-treatment SPQ 2 was significantly lower than pre-treatment SPQ \( t(30) = 7.7, P < 0.001 \), while post-treatment BAT 2 was reliably higher than pre-treatment BAT \( t(30) = -11.6, P < 0.001 \).

Correlations between CFQ, SPQ, and BAT. CFQ scores of non-phobic controls were not related to their SPQ or BAT scores. Surprisingly, for phobic subjects, there was a significant negative association of CFQ with pre-treatment SPQ \( r = -0.36 \). Moreover, CFQ was found to be positively related to post-treatment BAT indices \( r = 0.42 \) and \( r = 0.52 \). The correlations between CFQ and post-treatment BAT scores remained (marginally) significant when the effect of pre-treatment BAT was cancelled out (partial correlations of CFQ with post-treatment BAT 1 and BAT 2: \( r = 0.29 \), \( P = 0.06 \) and \( r = 0.43, P < 0.01 \), respectively). CFQ was not related to post-treatment SPQ measures.

Discussion

The results of Study 2 did not accord well with predictions that can be derived from the literature. Spider phobics did not have higher CFQ scores than control subjects. Furthermore, no evidence was found for the idea that a high frequency of self-reported failures is associated with more severe phobic symptoms (in terms of SPQ and BAT) or a less favourable treatment outcome. As matter of fact, CFQ scores of spider phobics were negatively related to their pre-treatment SPQ scores. That is, the higher the frequency of cognitive failures, the lower the self-reported spider fear. Also, the correlation of CFQ with post-treatment BAT was positive rather than negative, indicating that high CFQ scores are accompanied by more approach behaviour in treated phobics.

STUDY 3: CFQ IN ANXIETY DISORDERED AND DEPRESSIVE PATIENTS

The findings of Study 2 were disappointing in that no evidence was found for the view that high CFQ scores are associated with relatively severe symptoms and limited treatment success. However, one obvious explanation for these disappointing results is that spider phobia is a relatively mild form of psychopathology (e.g., Davey, 1992). It may well be that CFQ scores can only be used as an index of vulnerability when psychopathological conditions are characterized by a broad range of symptoms. Germaine to this issue is the finding that the CFQ scores of spider phobics and control subjects did not differ.

Study 3 examined whether CFQ scores are related to symptom intensity and treatment outcome in a sample of subjects with broad psychopathology. More specifically, the study relied on patients with severe anxiety or depression complaints that required prolonged treatment. Before treatment, the patients completed the CFQ as well as the Fear Questionnaire (FQ; Marks & Mathews, 1979), the Symptom Check List (SCL-90; Derogatis, 1977), and the Depression Symptom Inventory (DSI; Bouman, 1987). For a subsample, post-treatment scores of CFQ, FQ, SCL-90, and DSI were available. Three specific questions were addressed. Firstly, do anxiety disordered and depressive patients have heightened pre-treatment CFQ scores? Secondly, is there a differential pattern of pre-treatment CFQ subscale scores among the patients. Laboratory research indicates that panic disorder, agoraphobia, generalized anxiety disorders (GAD), post-traumatic stress disorder (PTSD), and social phobia are characterized by a bias in attentional processes (see e.g., Macleod, 1991). Laboratory experiments also suggest that depression is related to a biased memory function (e.g., Williams et al., 1988) and obsessive–compulsive disorder (OCD) is related to dysfunctions in the metacognitive control of actions (e.g., Sher, Mann & Frost, 1984). Given this state of affairs, Study 3 explored whether patients have differential CFQ profiles such that panic disorder, GAD etc. is associated with heightened scores on perception/attention items, depression with heightened scores on memory items, and OCD with heightened scores on action items. Thirdly, as pre-treatment and post-treatment measures of FQ, SCL-90, and DSI were available for a subsample of patients, the extent to which pre-treatment CFQ scores predict therapy outcome was examined.
Method

Subjects. Subjects were 224 patients (105 men; 119 women) who were referred to the Academic Section for Behaviour Therapy at the Community Mental Health Care Centre (RIAGG), Maas- tricht. Mean age was 35 yr (range: 19–72 yr). Diagnoses were based on the Structural Clinical Interview for DSM-III-R (SCID; Spitzer & Williams, 1985). The patients met DSM-III-R criteria for panic disorder (n = 69), panic disorder with agoraphobia (n = 73), GAD (n = 15), social phobia (n = 6), PTSD (n = 2), atypical anxiety (n = 3), OCD (n = 36), major depressive episode (n = 18) or depressive disorder not otherwise specified (n = 2).

As there was no matched normal control group available, CFQ scores of the patients had to be compared with those of the normal subjects that participated in Study 1. To ensure a conservative strategy, sample 2 of Study 1 (see Table 1) was employed as a control group: this sample had a sufficient size and a relatively high mean CFQ. Yet, it should be borne in mind that there are age and, possibly, educational differences between this sample of undergraduates and the patients that participated in the current study. Of interest is that there was no substantial correlation between age and CFQ in sample 2 (r = −0.08). Neither was there a correlation between age of the patients and their CFQ scores (r = 0.01). Thus, it is reasonable to assume that the differences in age between sample 2 of Study 1 and the patients in the current study had no effect on CFQ comparisons reported below.

Assessment and procedure. Before treatment began or during the first treatment session, patients completed the CFQ. A subsample of anxiety disordered patients (n = 116) also completed the FQ, SCL-90, and DSI. At the end of the treatment program, this subsample completed CFQ, FQ, SCL-90, and DSI for a second time.

The FQ (Marks & Mathews, 1979) is a 15-item questionnaire which asks for phobic avoidance. It contains three scales: A social phobia scale, an agoraphobia scale, and a blood-injury phobia scale. In the present study, a total FQ score was obtained by summing the three subscale scores. The Dutch version of the SCL-90-R (Derogatis, 1977; Arrindell & Ettema, 1986) is a 90-item self-report inventory of current psychopathology. Items of this instrument tap a broad domain of psychopathology, ranging from somatization and depression to agoraphobia and OCD. In this study, the summed SCL-90 score was used. The DSI (Bouman, 1987) is a 29-item self-rating depression questionnaire. Scores were summed to obtain a total depression score (see also Study 1).

The details of the treatment program differed from patient to patient. Some patients received an exposure in vivo program, others underwent exposure with response prevention, still others received cognitive therapy or applied relaxation and so on. The number of different behavioural techniques applied was 15. The mean number of therapy sessions was 18 (SD = 12.0). Mean therapy duration was 20 weeks (SD = 13.0). All in all, seven therapists were involved in the treatment programs. They were not informed about the CFQ scores of their patient.

Results

CFQ scores of anxiety disordered and depressive patients. Three groups were formed: patients with OCD (n = 36), patients with other anxiety disorders (e.g., panic disorder, GAD; n = 168), and patients with depression (n = 20). There were no differences between the groups with regard to sex [χ²(2) = 3.0, P = 0.23] or age [F(2,223) < 1.0].

The mean CFQ total scores of the three groups were compared with that of sample 2 in Study 1. Patients with anxiety disorders such as panic disorder, GAD etc. had lower CFQ scores than normal subjects, means being 36.6 (SD = 13.1) vs 41.3 (SD = 10.4) [t(267) = −3.1, P < 0.005]. Similarly, OCD patients tended to have lower CFQ scores (M = 37.8, SD = 14.7) than normals [t(135) = −1.6, P = 0.12]. Conversely, depressive patients had significantly higher CFQ scores (M = 51.3, SD = 13.3) than normal control subjects [t(119) = 3.7, P < 0.005].

Analyses of the CFQ subscale scores revealed that the depressive group differed significantly from the anxiety disorders and OCD groups in that depressive patients had higher scores on all subscales. Thus, depressive patients scored higher, not only on the memory subscale, but also on the perception/attention and the action items. The anxiety disorders group and the OCD group did not differ with regard to mean CFQ subscale scores.

Correlations between CFQ, FQ, SCL-90, and DSI. For a subsample of patients (n = 116), complete
Table 3. Pearson correlations between pre-treatment and post-treatment CFQ and FQ, SCL-90, and DSI in a sample of anxiety disordered patients (N = 116)

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*P < 0.01.
Note: Only relevant correlations are presented.

Pre-treatment and post-treatment information about CFQ, FQ, SCL-90, and DSI were available. This subsample consisted of panic disorder patients with or without agoraphobia (n = 83), GAD patients (n = 9), social phobic patients (n = 4), OCD patients (n = 18), a PTSD patient (n = 1), and a patient with atypical anxiety (n = 1).

In general, treatment interventions were followed by steep reductions in FQ [(t(115) = 9.6, P < 0.001), SCL-90 [(t(115) = 11.9, P < 0.001], and DSI [(t(115) = 10.0, P < 0.001]. These data suggest that, on the whole, treatment programs were effective. Interestingly, CFQ also declined from pre- to post-treatment [(t(115) = 6.8, P < 0.001], means being 34.3 (SD = 13.0) and 28.4 (SD = 11.6), respectively.

Table 3 shows Pearson correlations between pre- and post-treatment scores of CFQ on the one hand and pre- and post-treatment FQ, SCL-90, and DSI scores on the other hand. As can be seen, there were significant positive correlations between pre-treatment CFQ and pre-treatment FQ, SCL-90, and DSI. However, there was no significant association between pre-treatment CFQ and post-treatment FQ, SCL-90, and DSI. In contrast, post-treatment CFQ did correlate significantly with post-treatment FQ, SCL-90, and DSI.

Discussion

The main results of Study 3 can be summarized as follows. Firstly, depressive patients, but not patients with OCD or other anxiety disorders (e.g., panic disorder, GAD etc.) had significantly higher CFQ levels than normal control subjects of sample 2. Subjects with anxiety complaints such as panic disorder, agoraphobia and so forth even had significantly lower CFQ scores than the normal control subjects of sample 2. Note, however, that sample 2 served as an ad hoc control group for the patients. Consequently, the difference between anxious patients and the normal control subjects of sample 2 might be owing to sample fluctuations. The fact that there was no significant difference in mean CFQ between anxious patients and the undergraduate controls of sample 3 in Study 1 [(t(315) = 1.2, P = 0.21)] underlines this possibility. Secondly, the three patient groups were not characterized by differential CFQ subscale profiles. Thus, there was no evidence to support the idea that depressive patients are characterized by self-reported cognitive failures in memory functions, OCD patients are characterized by errors in action control, and other anxiety disordered patients are characterized by perception/attention failures. The only robust difference that emerged was that depressive patients have an overall higher CFQ level than anxious patients (including OCD subjects). Thirdly, while pre-treatment CFQ scores were positively related to pre-treatment symptom severity (as indexed by FQ, SCL-90, and DSI), they were not associated with post-treatment symptom intensity. Consequently, on the basis of these data, there is little reason to believe that pre-treatment CFQ might predict treatment success. Interestingly, CFQ scores appeared to be sensitive to treatment effect. That is, following treatment, CFQ scores were significantly lower than before treatment. Post-treatment CFQ scores were, again, positively associated with post-treatment symptom severity (as indexed by FQ, SCL-90, and DSI).

To summarize, then, the current results indicate that CFQ scores of anxiety disordered and depressive patients are positively related to their symptom severity scores: the higher the frequency of self-reported cognitive failures, the higher the scores on questionnaires measuring anxiety symptoms,
general psychopathology, or depression. However, there appears to be no relationship between CFQ and treatment outcome.

**GENERAL DISCUSSION**

Using experimental paradigms from cognitive psychology, numerous studies have demonstrated that neurotic disorders are accompanied by biased information processing. More precisely, anxiety disorders such as specific phobias and GAD are characterized by an attentional bias, depression is related to memory bias, and OCD is linked to dysfunctions in the regulation of actions (see for reviews, Eysenck, 1992; Wells & Matthews, 1994; Williams et al., 1988). There are indications that cognitive biases are not merely epiphenomena of emotional disorders, but play a crucial role in the development and maintenance of these disorders (e.g., Brittlebank et al., 1993; de Jong, van den Hout & Merckelbach, 1995; MacLeod & Hagan, 1992). Meanwhile, studies concerned with cognitive dysfunctions and neurotic disorders heavily rely on experimental tasks. Given the clinical relevance of cognitive biases, it would be useful if clinicians would have a paper-and-pencil instrument with which these biases can reliably be measured. In this context, the CFQ might be interesting, precisely because it contains items that refer to perception/attention failures, memory failures, and failures in action. Accordingly, the present studies addressed three issues. Firstly, it was examined whether the CFQ is related to symptom intensity in patients. Secondly, it was explored whether different diagnoses (e.g., anxiety disorders, depression) are associated with different CFQ subscale scores. Thirdly, the connection between CFQ and treatment success was investigated.

As to the first issue, Study 1 demonstrated that in undergraduate subjects, there is a close connection between CFQ on the one hand and state measures of anxiety and depression on the other hand. When the influence of traditional trait indices (EPQ-N; STAI-trait) was partialled out, the correlations between CFQ and state anxiety measures remained significant, while those between CFQ and depression dropped to an insignificant level. On the basis of these results, it was anticipated that the CFQ would correlate positively with anxiety and avoidance in spider phobics. However, Study 2 found no evidence for this. As a matter of fact, CFQ was found to be negatively related to indices of spider fear. As already noted, it might be the case that spider phobia is a condition with only mild cognitive disturbances. Note in passing that studies relying on experimental procedures (e.g., Stroop tasks) to assess cognitive functions have found strong evidence for an attentional bias in spider phobia (e.g., Lavy, van den Hout & Arntz, 1993). Therefore, it is hard to escape the conclusion that these experimental procedures are more sensitive to biased information processing in spider phobia than the CFQ.

Study 3 was carried out to examine whether the CFQ would be related to symptom severity in more serious conditions than spider phobia. Results showed that in outpatients, there are, indeed, substantial (and positive) correlations between CFQ and measures of symptom severity. Curiously enough, depressive subjects exhibited the highest CFQ scores. This is difficult to reconcile with one of the conclusions of Study 1, namely that CFQ scores are related to anxiety rather than depression (see also Power, 1988). There is no ready explanation for this discrepancy. It might be the case that clinical, but not subclinical levels of depression are accompanied by high CFQ scores. Alternatively, the depressive subjects in Study 3 might have suffered form concomitant anxiety symptoms. Unfortunately, psychometric measures of anxiety and depression were not available for the depressive subjects of Study 3. Clearly, future studies are needed to evaluate the precise relationships between anxiety, depression, and CFQ.

The material collected in Study 3 was also relevant for the second issue: are different diagnoses associated with different CFQ subscale profiles? No evidence was found for such specific subscale profiles. On all subscales depressive patients were found to score higher than the other patient categories. Again, this finding suggests that the CFQ is less sensitive than laboratory paradigms in evaluating cognitive biases. As said earlier, studies employing laboratory paradigms have demonstrated that different neurotic disorders are linked to specific cognitive biases (e.g., Eysenck, 1992). Why is the CFQ not successful in detecting differential cognitive biases? There might be a simple answer to this question. CFQ items such as 'Do you find you forget appointments?' probably refer to phenomena in which not only memory, but also attentional and action control processes
are involved. In other words, it is unlikely that CFQ items represent pure indices of attention, memory, or action. The fact that the factor analysis in Study 1 yielded a 1-factor solution supports this suggestion.

As to the third issue, i.e., CFQ and treatment success, neither Study 2, nor Study 3 found evidence to suggest that high CFQ scores are associated with a less favourable treatment outcome. Admittedly, the post-treatment measures in Study 2 indexed short-term therapy outcome. With long term follow-up measures, correlations between CFQ and treatment relapse might have emerged. However, in Study 3, post-treatment measures were taken after a mean therapy duration of 20 weeks. Nonetheless, there were no indications that high CFQ patients benefit less from therapy.

In sum, by and large, the results of the current studies are in line with earlier work in that positive correlations were found between CFQ and neurotic symptoms. One straightforward explanation for these correlations is that neurotic symptoms consume cognitive resources, thereby producing everyday slips and lapses. However, this conclusion should not obscure the fact that in spider phobia, no relationship was found between CFQ and symptom severity. Furthermore, anxiety disordered patients did not attain significantly higher CFQ scores than normals, CFQ scores did not predict treatment outcome, and no evidence was found for specific CFQ profiles in different disorders. Consequently, the CFQ cannot replace the laboratory paradigms from cognitive psychology. Obviously, these laboratory paradigms allow for a more fine-grained analysis of cognitive biases in psychopathology than the CFQ.

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