EMPIRICAL ARTICLE

Development and Validation of the Family Coping Questionnaire for Eating Disorders

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Abstract
Objective: To develop and validate a new instrument, the Family Coping Questionnaire for Eating Disorders (FCQ-ED), specifically designed to assess the coping strategies of relatives of patients with eating disorders (EDs).

Method: The study was articulated in the following seven stages: (1) in-depth analysis of scientific literature; (2) focus groups with expert researchers and clinicians in the fields of EDs and family assessment; (3) development of a pre-final version of the questionnaire; (4) recruitment of relatives and patients with EDs; (5) data collection; (6) statistical analysis; (7) finalization of the questionnaire.

Results: The final version of the questionnaire consists of 32 items, grouped in five subscales (“avoidance,” “coercion,” “collusion,” “information,” and “positive communication with the patient”), with a Cronbach’s alpha ranging between 0.820 and 0.625. All items with a Cohen’s Kappa > 0.60 were included in the final version of the questionnaire. Factor analysis led to the identifications of two factors, the problem-oriented and the emotion-focused coping strategies.

Discussion: The final version of the questionnaire shows good psychometric properties, and it requires a short time to be completed. The five subscales correspond to those adopted by relatives of patients with schizophrenia, confirming that relatives of patients with EDs need to be supported and informed on how to cope with patient’s disturbing behaviours. This questionnaire may be particularly useful for the development of psychoeducational packages for relatives of patients with EDs and the evaluation of the impact of family functioning on the course of the disease. © 2014 Wiley Periodicals, Inc.

Keywords: eating disorders; coping strategies; relatives; validation

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Introduction

Caring for someone with an eating disorder (ED) is often associated with high levels of practical burden and psychological distress. Family members too often do not have enough information about the disease and its management, and tend to adopt dysfunctional coping strategies. Generally speaking, task-oriented coping strategies are seen as adaptive and are associated with lower levels of anxiety and depression, while emotion- and avoidance-oriented strategies are viewed as maladaptive and tend to be associated with increased distress.

Similarly to other severe mental disorders, EDs have a profound impact on family functioning. In particular, family members of people with EDs report problems in social relationships, employment and global health, and maladaptive coping strategies, including self-blame, blaming the patient for his/her illness, helplessness, and an overprotective or overanxious response.

Despite all this, instruments specifically developed to measure the various aspects of family functioning and coping in EDs are missing. In fact, the family environment of patients with EDs has been explored mostly by qualitative studies, which have analyzed the personal experiences of relatives living with ED patients. Moreover, the few available quantitative studies have adopted instruments not tailored for EDs, such as the experience of caregiving inventory (ECI). This questionnaire, developed for the assessment of families of patients with schizophrenia, includes 66 items grouped into eight negative scales (difficult behaviours, negative symptoms, stigma, problems with services, effects on family, need to backup, etc.).
dependency, loss) and in two positive scales (positive personal experiences and good relationship with patient). Although it has been used to describe caregivers experiences in caring patients with ED, none of these 10 subscales specifically explores coping strategies.

More recently, two instruments have been developed to specifically assess impact of ED symptoms on caregiving. However, these scales, which have good psychometric properties, are mostly focused on the effects of patients’ eating behaviours on burden and explore relatives’ accommodating behaviours rather than coping strategies according to the Lazarus and Folkman model. It is likely that existing measures in the field of EDs may miss particular types of coping strategies, such as coercion, collusion, positive communication, seeking for information, and spiritual help, reported in the literature on family caregiving.24,25 Other assessment instruments on caregiving experiences, such as the ECI and on coping strategies, such as the Brief-COPE, were also considered. During focus groups, each item was critically discussed, reviewed and when necessary rewritten, in order to improve clarity and comprehensibility. Items were designed to capture the multiple aspects of coping strategies identified in prior studies on mental disorders. In the following stage, a pre-final version of the questionnaire was developed including 72 items rated on a four-point level scale (“Always,” “Sometimes,” “Rarely,” “Never”). The following steps were the recruitment of patients with EDs and their relatives at three Universities of Naples SUN, Salerno, and Catanzaro, who were administered the pre-final version of the questionnaire; the analysis of the main psychometric properties of the instrument and the finalization of the questionnaire.

Patients consecutively attending the three centres were asked to take part in the study if they fulfilled the following inclusion criteria: (a) a diagnosis of an ED according to the DSM-IV-TR; (b) an age between 18 and 65 years; (c) living with a relative for at least 9 months in the last year and continuously in the last 3 months.

Relatives were included if they were aged between 18 and 65 years and were actively involved in the patient’s care. All patients and relatives provided their informed consent to participate in the study. For each patient, more than one relative could be recruited. Relatives were asked to fill in the preliminary version of the questionnaire and to provide a rating of importance and appropriateness for each item on a 10 level scale (1 = item not important at all; 10 = item very important). Thirty relatives were asked to recomplete the questionnaire after one week to assess the test–retest reliability. The reasons for discrepancies in the test–retest group were explored through an ad-hoc schedule and discussed among the researchers.

### Method

The methodology adopted for the development of the FCQ-ED questionnaire follows the same methodology used to validate the previous version of the questionnaire on coping strategies (FCQ) of relatives of patients with schizophrenia. The FCQ is based on Spaniol’s (1987) description of coping strategies, and derives from the coping interviews developed by McCarthy et al. (1990) and Birchwood and Cochrane (1990). It consists of 34 items and is validated in several languages, including English, German, Greek, Italian, Portuguese and Spanish.

The present study was articulated in several stages. The first was an in-depth analysis of the relevant scientific literature, carried out by two researchers using PubMed, ISI Web of Knowledge and Google Scholar. The search covered the last 10 years, and the keyword “eating disorders” (including “anorexia,” “anorexia nervosa,” “bulimia,” “bulimia nervosa,” “binge eating disorder”) was matched with each of the following terms: “coping strategies,” “family burden,” “expressed emotion,” “family functioning.” The items for this scale were generated by a panel of expert researchers and clinicians in the fields of EDs and family assessments. Transcripts of recordings from previous pilot workshops and earlier qualitative and quantitative work with families were used. The panel was made of four psychiatrists, two PhD students and two residents in psychiatry. The produced items were reviewed by five expert carers. Items were taken from the Family Coping Questionnaire for schizophrenia, developed and validated in Italy in 1996 by researchers working at the Department of Psychiatry of the University of Naples SUN. Other assessment instruments on caregiving experiences, such as the ECI and on coping strategies, such as the Brief-COPE, were also considered. During focus groups, each item was critically discussed, reviewed and when necessary rewritten, in order to improve clarity and comprehensibility. Items were designed to capture the multiple aspects of coping strategies identified in prior studies on mental disorders. In the following stage, a pre-final version of the questionnaire was developed including 72 items rated on a four-point level scale (“Always,” “Sometimes,” “Rarely,” “Never”). The following steps were the recruitment of patients with EDs and their relatives at three Universities of Naples SUN, Salerno, and Catanzaro, who were administered the pre-final version of the questionnaire; the analysis of the main psychometric properties of the instrument and the finalization of the questionnaire.

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### Statistical Analysis

The test–retest reliability of each item of the questionnaire was measured by the Cohen’s kappa coefficient. The face validity of the items was explored by means and standard deviations of the ratings on the 1–10 appropriateness scale. Pearson’s rho coefficient was used to evaluate the variance of the responses. Cronbach’s alpha analysis was used to group the single items into the hypothesized subscales (content validity). The confirmatory factor analysis was performed on the subscales, entering the average of the items, in order to identify the main areas covered by the tool (construct validity). The confirmatory factor analysis was performed
using the principal component extraction method with Varimax rotation and Kaiser normalization, and the Eigenvalues greater than 1 were used to select items for each of the domains. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity were reported for assessing factorability of the data. Items were included in the final version of the questionnaire if they had: a Cohen's kappa coefficient >0.60, \(^{35}\) an appropriateness rating >6.0, and an item-scale correlation >0.70.\(^ {29}\)

The level of significance was set at \(p < .05\). All analyses were performed using the Statistical Package for Social Science software (SPSS), version 18.0.\(^ {36}\)

### Results

During the study period, 110 patients and 186 relatives fulfilled the inclusion criteria and were asked to participate to the study. Thirteen patients (11%) and 25 family members (13%) declined. The final study sample consisted of 97 patients and 161 relatives.

Relatives were more frequently female (55%), with a mean age of 46.3 (±12.9) years, married (77%), and employed (69%). Seventy-two percent of them were parents of the patients, 15% siblings and 10% spouses. Patients were most frequently female (94%), with a mean age of 24.5 (±8.8) years and a mean duration of illness of 5.8 (±5.7) years. Forty percent of them had the diagnosis of anorexia nervosa (restrictive subtype: 73%; purging subtype: 22%; in 5% of cases the subtype was not specified), 31% of bulimia nervosa and 29% of an ED not otherwise specified. The socio-demographic characteristics of patients and relatives are reported in Tables 1 and 2.

The initial version of the questionnaire, consisting of 72 items, requested approximately half an hour to be completed (29.8 ± 16.1 min). On the 1–10 appropriateness scale, the mean scores ranged between 6 and 6.9 for 50% of the items, and were above 7 for 47% of the items. Only on two items (3%) the score was below 6, leading to the exclusion of these items from the final version of the instrument.

Cohen’s kappa coefficient was lower than 0.39 for eight items, ranged between 0.40 and 0.49 for seven items, and was between 0.50 and 0.59 for nine items. These 24 items were deleted from the final version of the questionnaire. In addition, 14 items were excluded for having an item-scale correlation lower than 0.70. The steps of the development of the final version of the questionnaire are summarized in Figure 1.

From Cronbach’s alpha analysis, performed on the remaining 32 items, the following five subscales emerged: (1) coercion, including nine items (alpha value = 0.809); (2) positive communication, including 10 items (alpha value = 0.716); (3) collusion, consisting of six items (alpha value = 0.820); (4) seeking for information, consisting of two items (alpha value = 0.625); (5) avoidance, including four items (alpha value = 0.514). An item on seeking for spiritual help did not enter any subscale, but was considered very important by relatives and was included in the final version of the questionnaire (Table 3).

KMO measure of sampling adequacy for the sample was 0.611, corresponding to the recommended value of at least 0.6 and the Bartlett’s Test of Sphericity was statistically significant for the sample \(\chi^2(10) = 54.726; p < .0001\), supporting the factorability of the correlation matrix. The confirmatory factor analysis performed on the five subscales identified two factors, that were confirmed by the Varimax rotation (with Kaiser normalization). The global percentage of explained variance was 54.7%. The first factor, which included

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### Table 1. Patients’ socio-demographic and clinical characteristics (N = 97)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>M (SD)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender, F, % (N)</td>
<td>94 (90)</td>
<td></td>
</tr>
<tr>
<td>Age, M (SD)</td>
<td>24.5 (8.8)</td>
<td></td>
</tr>
<tr>
<td>Single, yes, % (N)</td>
<td>79 (77)</td>
<td></td>
</tr>
<tr>
<td>Years of education, M (SD)</td>
<td>13.1 (3.3)</td>
<td></td>
</tr>
<tr>
<td>Employment, No, % (N)</td>
<td>78 (74)</td>
<td></td>
</tr>
<tr>
<td>Number of family members, M (SD)</td>
<td>3.9 (1.1)</td>
<td></td>
</tr>
<tr>
<td>Number of patients with at least one voluntary admission, yes, % (N)</td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>Number of patients with at least one involuntary admission, yes, % (N)</td>
<td>5.8 (5.7)</td>
<td></td>
</tr>
<tr>
<td>Duration of the illness, years, M (SD)</td>
<td>5.9 (3.6)</td>
<td></td>
</tr>
<tr>
<td>Time in charge to the mental health unit, months, M (SD)</td>
<td>9.6 (16.7)</td>
<td></td>
</tr>
</tbody>
</table>

F = Female; N = number of patients; M = mean; SD = Standard deviation.

### Table 2. Relatives’ socio-demographic characteristics (N = 161)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>M (SD)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender, F, % (N)</td>
<td>58 (88)</td>
<td></td>
</tr>
<tr>
<td>Age, M (SD)</td>
<td>46.1 (13.0)</td>
<td></td>
</tr>
<tr>
<td>Married, yes, % (N)</td>
<td>77 (122)</td>
<td></td>
</tr>
<tr>
<td>Years of education, M (SD)</td>
<td>12.1 (3.9)</td>
<td></td>
</tr>
<tr>
<td>Employment, Yes, % (N)</td>
<td>60.9 (98)</td>
<td></td>
</tr>
<tr>
<td>Relationship with the patient, % (N)</td>
<td>1 (1)</td>
<td></td>
</tr>
</tbody>
</table>

F = Female; N = number of patients; M = mean; SD = Standard deviation.
coercion, collusion and avoidance (percentage of explained variance = 28.5%), described emotional coping strategies. The second factor, which included positive communication and seeking for information (percentage of explained variance = 26.2%), described problem-solving coping strategies (Table 4).

Discussion

To our knowledge, the FCQ-ED is the first questionnaire specifically aiming to assess coping strategies in relatives of patients with EDs. Other instruments assessing how relatives cope with a mental disorder have been previously developed and routinely used in clinical practice, but they were not specifically targeted to EDs, in which relatives’ involvement is very different from all other mental disorders. The only available questionnaire, specifically developed for EDs, is the AESED scale.\textsuperscript{25} However, this instrument explores family accommodation to illness and enabling characteristics, which are rather different from coping strategies, since the former fluctuates over time as a consequence of patients’ symptoms and behaviors, while the latter is more stable over time.\textsuperscript{1,37}

The questionnaire is derived from another instrument developed by our group to explore coping strategies in relatives of patients with schizophrenia.\textsuperscript{26–29} We decide to use the existing schizophrenia version of the questionnaire as model considering that carers of patients with EDs and carers of patients with schizophrenia are burdened with similar problems and have high levels of unmet needs which are usually not addressed in clinical practice.\textsuperscript{38} Interestingly, our findings show that the subscales “maintenance of social interests” and “resignation” of the version for schizophrenia did not fit the model in the case of EDs and therefore were not included in this new version of the questionnaire. This is probably due to the fact that relatives of ED patients do not usually lose their social interests and are less likely to resign themselves compared with relatives of schizophrenic patients, thus potentially representing a positive resource for patients’ care.

On the other hand, the subscales “avoidance,” “coercion,” “collusion,” “information,” and “positive communication with the patient” of the FCQ-ED correspond to those endorsed by relatives of patients with schizophrenia in the development of that questionnaire. This finding may suggest that family supportive interventions, which have proven to be effective for schizophrenia,\textsuperscript{39–41} may be tailored to meet the needs of relatives of patients with EDs.

Although the item “Seeking for spiritual help” did not fit into any subscale, it has been kept in the final version of the questionnaire because it has
be rated as very important by most relatives (93%). Indeed, the role of spirituality as a source of strength and resilience for patients with mental disorders and their relatives has been documented in several studies.42–44

One of the main strengths of this study is the large sample size and the adoption of a multicenter design, which aid generalizability of our findings.

The questionnaire shows good psychometric properties, and requires a short time to be completed: it can be, therefore, used in both research and clinical settings. From a research viewpoint, an adaptation to different socio-cultural and health care contexts may be needed45, from a clinical viewpoint, its usefulness to identify patients’ and relatives’ unmet needs remains to be clarified.

The content analysis led to the identification of five subscales, with a Cronbach’s alpha ranging between 0.820 and 0.625. Only the subscale “Avoidance” showed a moderate alpha value of 0.514. However, we decided to keep this subscale in the final version of the questionnaire because of its clinical relevance.16

Through the confirmatory factor analysis, the five subscales have been grouped into two factors, the problem-oriented and the emotion-focused coping strategies, thus mirroring the data on schizophrenia and other psychotic disorders.39,46–48 It may be that emotion-focused coping strategies, which include collusion, avoidance and coercion, are more frequently adopted by relatives who have higher levels of burden and who are at higher risk of developing common mental disorders. Of course, this can be explored in subsequent analyses from our dataset.

An important issue regarding the usability of the questionnaire is the length of time it takes to complete it. The compilation time of about 30 minutes includes the psychometric ratings of applicability (the 1–10 ratings) and the entire 70 questions of the pre-final version of the instrument. Since it might be useful for people who plan to use the questionnaire in their research or clinical setting to have a better estimate of the time required to fill in the questionnaire, we decided to run a pilot study, involving 20 relatives, using the final version of the questionnaire. Time to complete it was 13 min (±5). This study has some limitations that need to be acknowledged. First, the questionnaire has been developed and validated in Italian, and it was translated and back-translated into English by expert professionals. The validation of the English version of the instrument, which will be one of the next steps of this study, will enable replication of findings and generalizability in other socio-cultural

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**TABLE 3.** Subscales of the FCQ-ED questionnaire

<table>
<thead>
<tr>
<th>Coercion subscale, nine items, alpha value = 0.809</th>
</tr>
</thead>
<tbody>
<tr>
<td>I hid the food to S to prevent he/she ate too much</td>
</tr>
<tr>
<td>When I saw that S was eating everything that came to hand very quickly, I reacted angrily</td>
</tr>
<tr>
<td>When I saw that S was preparing large amounts of food to eat, I got angry and told him/her off</td>
</tr>
<tr>
<td>When I saw that S got locked in the bathroom to vomit, I shouted him/her to get out</td>
</tr>
<tr>
<td>After every meal, I lock the bathroom to prevent S from vomiting</td>
</tr>
<tr>
<td>When I saw that S was vomiting, I reacted angrily</td>
</tr>
<tr>
<td>When S checked his/her body weight too frequently, I shouted him/her to stop doing it</td>
</tr>
<tr>
<td>When S checked his/her body weight too frequently, I hid the weight scale</td>
</tr>
<tr>
<td>When S checked his/her body weight too frequently, I calmly tried to convince him/her not to do it again</td>
</tr>
</tbody>
</table>

**TABLE 4.** Confirmatory factor analysis

<table>
<thead>
<tr>
<th>Subscales</th>
<th>Factor 1</th>
<th>Factor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coercion</td>
<td>0.556</td>
<td>–</td>
</tr>
<tr>
<td>Collusion</td>
<td>0.623</td>
<td>–</td>
</tr>
<tr>
<td>Avoidance</td>
<td>0.808</td>
<td>–</td>
</tr>
<tr>
<td>Seeking for information</td>
<td>–</td>
<td>0.737</td>
</tr>
<tr>
<td>Positive communication</td>
<td>–</td>
<td>0.838</td>
</tr>
</tbody>
</table>

Percentage of explained variance: 54.7%.

Extraction method: Principal component analysis, with Varimax Rotation (with Kaiser normalization).
contexts. As regards the analytic approach adopted, we have tried to mirror previous development papers on the same topic in order to facilitate comparisons. A limitation regarding the developed questionnaire is due to subscales with few items (e.g., 2–4 items), that should biased the construct representation. We decided to keep such subscales in to the final version of the questionnaire and in the confirmatory factor analysis due to their clinical relevance, considering that such subscales with few items may provide less construct representation.

On the basis of our previous experiences with depression, bipolar disorder and schizophrenia, the next stages of our investigation will include: (a) the measurement of the stability of the identified factors over time and among ED relatives with different clinical and historical features; (b) the evaluation of the impact of family functioning, as assessed by the questionnaire, on the course of the disease; (c) the search for correlations between relatives’ coping strategies with their socio-demographic and cultural characteristics; (d) the development of psychoeducational packages for relatives of patients with EDs, addressing its clinical manifestations and psychosocial consequences. In particular, these packages should focus not only on EDs but also on providing relatives with practical strategies to deal with patients’ rituals and to organize themselves around the illness. These packages can be used in clinical and research settings, and the active involvement of users and carers in their development is highly advisable.

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