Cognitive appraisals in young people with obsessive-compulsive disorder

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Background: A number of cognitive appraisals have been identified as important in the manifestation of obsessive-compulsive disorder (OCD) in adults. There have, however, been few attempts to explore these cognitive appraisals in clinical groups of young people. Method: This study compared young people aged between 11 and 18 years with OCD (N = 28), young people with other types of anxiety disorders (N = 28) and a non-clinical group (N = 62) on three questionnaire measures of cognitive appraisals. These were inflated responsibility (Responsibility Attitude Scale; Salkovskis et al., 2000), thought–action fusion – likelihood other (Thought–Action Fusion Scale; Shafran, Thordarson & Rahman, 1996) and perfectionism (Multidimensional Perfectionism Scale; Frost, Marten, Luhart & Rosenblate, 1990). Results: The young people with OCD had significantly higher scores on inflated responsibility, thought–action fusion – (likelihood other), and one aspect of perfectionism, concern over mistakes, than the other groups. In addition, inflated responsibility independently predicted OCD symptom severity. Conclusions: The results generally support a downward extension of the cognitive appraisals held by adults with OCD to young people with the disorder. Some of the results, however, raise issues about potential developmental shifts in cognitive appraisals. The findings are discussed in relation to implications for the cognitive model of OCD and cognitive behavioural therapy for young people with OCD. Keywords: Cognitive models, inflated responsibility, obsessive-compulsive disorder, perfectionism, thought–action fusion. Abbreviations: ADIS-C: Anxiety Disorders Interview Schedule for Children; ADIS-P: Anxiety Disorders Interview Schedule for Parents; E/RP: Exposure/Response Prevention; LOI-CV: Leyton Obsessional Inventory – Child Version; MPS: Multidimensional Perfectionism Scale; OCD: Obsessive-Compulsive Disorder; RAS: Responsibility Attitude Scale; TAF-LO: Thought–Action Fusion – (Likelihood Other).

Over recent years there have been proposals that specific cognitions are associated with Obsessive-Compulsive Disorder (OCD) in adults (e.g., Obsessive-Compulsive Cognitions Working Group, 1997; Salkovskis, Forrester, & Richards, 1998; Steketee, Frost, Rhéaume, & Wilhelm, 1998) and mounting evidence to support this (e.g., Frost & Steketee, 1997; Salkovskis et al., 2000; Shafran et al., 1996). Evaluating whether or not young people with OCD have similar cognitive appraisals could help inform debates on differences and similarities between OCD in childhood and adulthood. Although cognitive abilities continue to develop through childhood and adolescence (Kail & Bisanz, 1991; Kuhn, Amsel, & O’Loughlin, 1988), studies with non-clinical samples suggest that young people hold similar cognitive appraisals about anxiety as adults (Chorpita, Albano, & Barlow, 1996; Hadwin, Frost, French, & Richards, 1997). Nevertheless, studies have rarely included young people who meet diagnostic criteria for anxiety disorders.

OCD was once thought to be rare in young people; however, it has now been established that OCD in children and adolescents is broadly similar in prevalence and symptomatology when compared to adults with the disorder. Lifetime prevalence is estimated at 3% for young people (Valleni-Basille et al., 1994) and 2.5% for adults (Karno, Golding, Sorenson, & Burnham, 1988). Between half and three-quarters of adults with OCD identify the onset of their symptoms before the age of 18 years (Pauls, Alsobrook, Goodman, Rasmussen, & Leckman, 1995; Rasmussen & Eisen, 1990). OCD is characterised by recurrent, intrusive and distressing thoughts or images (obsessions) that are typically ego-dystonic, going against the value system of the individual. Obsessional thoughts are usually confined to fears of contamination, fear of harm to self or others, sexual themes, aggressive thoughts, religiosity, scrupulosity and urge for symmetry or exactness (Swedo, Rapoport, Leonard, & Lenane, 1989). Compulsions are completed in an attempt to alleviate the distress generated by the obsessional thoughts. They are most commonly washing or checking (Riddle et al., 1990; Swedo et al., 1989), but can also present as repeating, touching, counting, ordering and hoarding.

Behaviour therapy comprising Exposure/Response prevention (E/RP) is currently the dominant therapeutic approach for young people with OCD (March, 1995). This approach uses graded exposure to the actual or imagined obsessional fear whilst resisting the urge to complete a ritual. E/RP is reported to be helpful for approximately 60% of young people with OCD (De Haan, Hoogduin, Buitelaar, & Keijsers, 1998), but as many as a third
drop out of this treatment (Allsopp & Verduyn, 1990). Furthermore, long-term follow-up studies of young people with OCD indicate that it is one of the most intractable anxiety disorders, with approximately 50% having persistent difficulties even with therapeutic input (Bolton, Luckie, & Steinberg, 1995; Flament et al., 1990).

It has been demonstrated that most adults experience intrusive thoughts and these are similar in content to those reported by individuals with OCD (Salkovskis & Harrison, 1984). It is hypothesised that for those who develop OCD it is the appraisal of these thoughts, rather than the thoughts per se, that causes distress. This has led to the proposal that certain cognitive appraisals are central to the development and maintenance of the disorder (Salkovskis et al., 1998; Steketee et al., 1998) and need to be addressed within therapy.

There is a growing evidence base that cognitive therapy is more effective than E/RP with adults (Van Oppen et al., 1995), although when administered in a group format E/RP has been found to be superior to cognitive therapy alone (McLean et al., 2001). There have been a few case studies indicating that these cognitive techniques can also be applied effectively with adolescents (Shafran & Somers, 1998; Williams, Salkovskis, Forrester, & Allsopp, 2002). These are promising findings but at present there is no direct evidence that the cognitions associated with OCD in adults are also widely held by young people with OCD.

A number of cognitive appraisals have been proposed as critical in OCD. Obsessive Compulsive Working Group (1997) suggest that beliefs pertaining to (1) inflated responsibility, (2) overimportance of thoughts, (3) excessive concern about the importance of controlling one’s thoughts, (4) overestimation of threat, (5) intolerance of uncertainty and (6) perfectionism are implicated. To date, the most empirical evidence has been found for inflated responsibility, overimportance of thoughts and perfectionism and these are evaluated in the current study.

Salkovskis (1989) suggested that individuals with OCD experience excessive responsibility for intrusive thoughts and external events and believe they could be accountable for the perceived consequence. This leads to distress and attempts to neutralise the intrusive thoughts by completing compulsive behaviour. Evidence for inflated responsibility relating to OCD comes primarily from experimental studies (Ladouceur et al., 1995; Ladouceur, Rhéaume, & Aublet, 1997) and questionnaires with non-clinical samples (Rhéaume, Ladouceur, Freeston, & Letarte, 1994; Wilson & Chambless, 1999). Salkovskis et al. (2000) is the only published study to compare clinical groups. They used the Responsibility Attitude Scale (RAS) to measure belief about responsibility. Adults with OCD had significantly higher scores on this measure when compared to individuals with other anxiety problems and a non-clinical group.

Although Salkovskis, Shafran, Rachman, and Freeston (1999) hypothesise that these beliefs emerge from childhood experiences, this has not yet been evaluated empirically.

Overestimating the importance of thoughts also appears to be critical in the presentation of OCD (Rachman, 1997). The specific error of equating an intrusive thought as increasing the likelihood of an event occurring to significant others, for example ‘if I think of a relative falling ill this increases the risk that he/she will fall ill’ is defined as Thought–Action Fusion – (Likelihood Other) (TAF-LO) (Shafran et al., 1996). Shafran et al. (1996) found that individuals with OCD had significantly higher scores on TAF-LO when compared to a student population and a community sample. Rassin, Merckelbach, Muris, and Schmidt (2001), however, found no difference between scores on TAF-LO in a group with OCD and a group with other anxiety disorders. More recently, Muris, Meesters, Rassin, Merckelbach, and Campbell (2001) developed a measure of thought–action fusion for adolescents and also found that it was correlated with anxiety and depression symptoms as well as OCD in a non-clinical sample. So, although TAF-LO is associated with obsessive-compulsive behaviours, it may also be found in other disorders.

The other type of cognitive appraisal that has been found to be elevated in adults with OCD is perfectionism. Perfectionism is often defined as striving for high standards of performance that are accompanied by overly critical evaluations (Antony, Purdon, Huta, & Swinson, 1998). It is underpinned by the belief that a perfect state exists and that one should always try to attain this (Pacht, 1984). Research with adults has predominantly used the Multidimensional Perfectionism Scale (MPS, Frost et al., 1990). The MPS identifies six factors, (a) perceiving high parental expectations, (b) perceiving parents as overly critical, (c) negative reaction to mistakes, (d) setting high personal standards, (e) doubting the quality of one’s actions and (f) emphasising the importance of organisation. The doubts about action subscale is confounded with OCD symptoms because these items are taken from the Maudsley Obsessional Compulsive Inventory (Hodgson & Rachman, 1977), so this subscale does not reveal meaningful cognitive appraisals (Shafran & Mansell, 2001) and will not be considered here.

Frost and Steketee (1997) found that a group of individuals with OCD had higher total perfectionism scores and concern over mistakes scores on the MPS than a non-clinical group but were not distinguishable from a group with panic disorder. Antony et al. (1998) compared a group of adults with OCD to individuals with panic disorder, social phobia, specific phobia and non-clinical controls. They also found that those with OCD did not differ from the other clinical groups on the other dimensions. All groups with anxiety disorders were significantly higher on concern over mistakes compared to the
non-clinical controls. In non-clinical samples concern over mistakes is related to sub-clinical obsessive-compulsive symptoms (Frost et al., 1990; Frost, Steketee, Cohn, & Griess, 1994). So, concern over mistakes appears to be the critical factor in distinguishing non-anxious and anxious individuals. Parental criticism has also been found to be higher in adults with anxiety disorders compared to non-clinical groups (Antony et al., 1998; Frost & Steketee, 1997; Saboonchi, Lundh, & Öst, 1999), although it has not been found to be associated with OCD.

In summary, studies using self-report questionnaires with adults indicate that cognitive appraisals associated with inflated responsibility are unique to individuals with OCD. Thought-action fusion – likelihood other and concern over mistakes may also be important in our understanding of OCD but are also held by adults with other anxiety disorders. Theorists have proposed that these cognitive appraisals emerge in childhood (Salkovskis et al., 1999), yet there have been few attempts to evaluate this empirically. This study used the measures of inflated responsibility (RAS, Salkovskis et al., 2000), thought-action fusion – (likelihood other) (TAF-LO, Shafra et al., 1996) and perfectionism (MPS, Frost et al., 1990) to evaluate cognitive appraisals in young people with OCD, young people with other anxiety problems and a non-clinical group of 11- to 18-year-olds. Although adapted measures of thought-action fusion (Muris et al., 2001) and inflated responsibility (Williams, personal communication) are being developed specifically for adolescents, these were not available at the outset of this project. The study’s principal aim was to investigate whether the same pattern of cognitive appraisals found in studies with adults will be observed in this younger population. A secondary aim of the study is to establish the relationship between cognitive appraisals and the extent these predict obsessive-compulsive symptoms.

Method

Participants

Three groups of young people aged between 11 and 18 years old were recruited for this study. Twenty-eight had OCD, 28 had other anxiety disorders and 62 were in a non-clinical group. The non-clinical group were recruited from a High School in the UK. The clinical groups were recruited by clinicians from a number of Child and Adolescent Mental Health Services in the east of England.

Parents of young people in the non-clinical group were asked to report if their child had previous or current problems with anxiety and whether or not they had consulted a professional about these problems. Eight families reported problems with anxiety but none had sought help from a professional and remained in the sample as they were classed as non-clinical. One young person was excluded from the non-clinical group because of a score on the Leyton Obsessional Inventory – Child Version (LOI-CV, Berg, Whitaker, Davies, Flament, & Rapoport, 1988) that was in the clinical range according to criteria laid down by Flament et al. (1988).

Diagnostic status for the clinical groups was established using two parallel versions of a structured interview for young people and parents. The Anxiety Disorders Interview Schedule for Children and Parents (ADIS-C and ADIS-P, Silverman & Albano, 1996) applies DSM-IV criteria (American Psychiatric Association, 1994) to diagnose anxiety disorder in children aged between 6 and 18 years. For the purposes of this study, only the sections pertinent to the diagnoses for inclusion were used. If a young person met criteria for more than one diagnoses the primary diagnosis was established by considering which produced the most distress from symptoms and the greatest interference in the young person’s life. The diagnoses for the group with anxiety disorder were separation anxiety (N = 4), generalised anxiety disorder (N = 6), panic disorder with agoraphobia (N = 8) and social phobia (N = 10). All young people in the OCD group met criteria for the disorder according to the ADIS. The level of comorbidity with other anxiety disorders was high, with all the young people in the anxious group meeting criteria for more than one diagnosis and all but two cases (93%) with OCD meeting criteria for more than one diagnosis. The comorbidity across the anxiety disorders is displayed in Table 1. Young people were excluded if the referring clinician had diagnosed Asperger’s syndrome, psychosis or drug abuse. Individuals who had comorbidity with other diagnoses (e.g., depression), according to clinician reports, remained in the sample.

Participants were not excluded if they were on medication for their anxiety symptoms. In the OCD group 17 (60.7%) young people were taking medication and in the

<table>
<thead>
<tr>
<th>Primary diagnosis</th>
<th>Separation anxiety</th>
<th>Social anxiety</th>
<th>Panic agoraphobia</th>
<th>GAD</th>
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</thead>
<tbody>
<tr>
<td>OCD</td>
<td>N</td>
<td>%</td>
<td></td>
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<tr>
<td></td>
<td>28</td>
<td>13</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>Separation anxiety</td>
<td>4</td>
<td>–</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Social anxiety</td>
<td>10</td>
<td>2</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Panic disorder &amp; agoraphobia</td>
<td>8</td>
<td>2</td>
<td>25.0%</td>
<td>6</td>
</tr>
<tr>
<td>Generalised anxiety disorder (GAD)</td>
<td>6</td>
<td>1</td>
<td>16.7%</td>
<td>3</td>
</tr>
</tbody>
</table>
anxious group 12 (42.8%) young people were taking medication.

The mean age in years of the participants in the three groups (OCD, $M = 14.08, SD = 1.10$; Anxious, $M = 14.09, SD = 1.10$; Non-clinical, $M = 14.08, SD = 1.08$) did not differ significantly ($F(2, 115) = .04, p = .96$). The gender ratio for the three groups (male:female, OCD 12:16; Anxious 6:22; Non-clinical 31:31) was significantly different ($\chi^2(2) = 6.51$, Fisher's exact test $p = .04$). The anxious group had significantly more girls than the other two groups.

**Measures**

**Leyton Obsessional Inventory – Child Version** (Berg et al., 1988). The revised Leyton Obsessional Inventory – Child Version (LOI-CV) was used to measure the severity of OCD symptoms. It is a 20-item self-report measure with yes/no ratings; if a yes rating is given it is then ranked for level of interference in daily life on a four-point scale. LOI-CV is not a diagnostic tool but a yes score greater than 15 and an interference score greater than 25 have been used as indicative of obsessive-compulsive psychopathology in previous studies (e.g., Flament et al., 1988). The LOI-CV has acceptable sensitivity but poor specificity (Flament et al., 1988). The total scale has a Cronbach’s $\alpha$ of .82 (Berg et al., 1988).

**Responsibility Attitude Scale** (Salkovskis et al., 2000). The Responsibility Attitude Scale (RAS) reflects general beliefs that would predispose for inflated responsibility. It is the only measure of inflated responsibility that has been used with clinical groups of adults. The RAS is a 26-item questionnaire where individuals rate a series of statements such as ‘I often feel responsible for things which go wrong’ on a 7-point scale.

The RAS has good test–retest reliability ($k = .94$) and high internal consistency ($x = .92$) (Salkovskis et al., 2000). Some wording was changed from the original version to make it suitable for a younger population. There were four changes: question 2 ‘see danger coming’ replaced ‘foresee danger’, question 14 ‘punished’ replaced ‘condemned’, question 17 ‘unforgivable’ replaced ‘inexcusable’ and question 18 ‘actions’ replaced ‘intentions’.

**Thought–Action Fusion Scale** (Shafran et al., 1996). The TAF has three subscales, Moral TAF, TAF-likelihood other and TAF-likelihood self. Only the TAF-likelihood other subsection (TAF-LO) has been found to be associated with OCD in adults (Shafran et al., 1996) and was the only subsection used in this study. This comprises four questions that evaluate the extent negative thoughts are believed to have consequences for other people (e.g., If I think of a friend/relative falling ill, this increases the risk that he/she will fall ill). Items are rated on a five-point scale. Internal consistency for TAF-LO is good, ranging from $x$’s of .93–.96 depending on the population sampled (Shafran et al., 1996).

**Multidimensional Perfectionism Scale** (Frost et al., 1990). The Multidimensional Perfectionism Scale (MPS) has previously been used with adults with OCD (Antony et al., 1998; Frost & Steketee, 1997) and a non-clinical sample of 10- to 12-year-olds (Stumpf & Parker, 2000). The MPS is a 35-item questionnaire which asks participants to rate statements on a five-point scale. It has six subscales that reflect concern over mistakes, personal standards, parental expectations, parental criticism, doubts about actions and organisation. All subscales have an internal consistency alpha value greater than .77 (Frost et al., 1990). The subscale Doubts about Action was not evaluated in this study because it is confounded with OCD symptoms (Shafran & Mansell, 2001). Wording was changed from the original so questions referring to parents were in the present tense (e.g., my parents want me to be the best at everything) rather than the past tense (e.g., my parents wanted me to be the best at everything).

**Procedure**

**Clinical group.** Families in this group were given information packs about the project by their clinician and returned consent forms to the researchers if they were interested in participating. The young person and parents were then interviewed by one of the authors either in the clinic or in the family’s home. The young person was always interviewed first with the ADIS-C followed by the parent using the ADIS-P. While the parent was being interviewed the young person completed the four questionnaire measures. The questionnaires were presented in a booklet and always completed in the same order, MPS, TAF-LO, RAS and LOI-CV.

**Non-clinical group.** Two hundred and fifty names were selected randomly from the school register and sent information packs about the project. Consent forms were returned to the researchers and the questionnaires were then posted to the young people to be completed. Eighty-eight families (35.2%) consented to participate and were sent the questionnaires to complete; 63 returned the questionnaires; this is 71.6% of those sent the questionnaires and 25.2% of all the families invited.

As most of these questionnaires had not been used with young people before, the participants were asked to place a star by any questions they failed to understand. Using a conservative measure including stars and items missed out, this occurred in 17 young people (14.4%). Forty-six questions in total were not answered, which is less than 1% of the total number of questions posed.

**Results**

**Internal consistency of questionnaires**

As many of the questionnaires had not been used with this age group previously, internal consistency for each of the questionnaires and their subscales was measured using Cronbach $\alpha$. These data are presented in Table 2. All had acceptable internal consistency ranging from .79 to .96.
Table 2: Internal consistency and comparison of the groups on item means for each of the questionnaire measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>OCD (N = 28)</th>
<th>Anxious (N = 28)</th>
<th>Non-clinical (N = 62)</th>
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<tbody>
<tr>
<td>Cronbach α</td>
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<tr>
<td>Leyton yes/no</td>
<td>.88</td>
<td>.75**</td>
<td>.39**</td>
</tr>
<tr>
<td>Leyton interference</td>
<td>.93</td>
<td>1.33*</td>
<td>.39**</td>
</tr>
<tr>
<td>Responsibility Attitude Scale</td>
<td>.95</td>
<td>4.75*</td>
<td>.39**</td>
</tr>
<tr>
<td>Thought Action Fusion – Likelihood Other</td>
<td>.96</td>
<td>1.96*</td>
<td>.39**</td>
</tr>
<tr>
<td>Multidimensional Perfectionism Scale</td>
<td>.91</td>
<td>2.59*</td>
<td>.39**</td>
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<tr>
<td>Multidimensional Perfectionism Scale</td>
<td>.83</td>
<td>3.07</td>
<td>.39**</td>
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<tr>
<td>Multidimensional Perfectionism Scale</td>
<td>.83</td>
<td>2.13*</td>
<td>.39**</td>
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<tr>
<td>Multidimensional Perfectionism Scale</td>
<td>.79</td>
<td>1.91</td>
<td>.39**</td>
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<tr>
<td>Multidimensional Perfectionism Scale</td>
<td>.90</td>
<td>3.48</td>
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<tr>
<td>Multidimensional Perfectionism Scale</td>
<td>.90</td>
<td>3.48</td>
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</table>

Different superscripts indicate significant differences between the groups.
*Significant at p < .05.
**Significant at p < .01.

All analyses were based on one-way ANOVAs and post-hoc Scheffé tests except where Kruskal–Wallis and Mann–Whitney U tests were used because the data was not normally distributed.

Group comparisons

Table 2 also presents the mean item scores for the measures used in the study. Item means are used so participants who missed a question could be included in all the analyses. Using a one-way ANOVA and post-hoc Scheffé tests, the OCD group had significantly higher item means on the LOI-CV yes/no ratings (F(2, 115) = 27.93, p < .01) than the anxious group (p < .01) and the non-clinical group (p < .01). The OCD group also had higher mean item scores on the LOI-CV interference scale (F(2, 115) = 48.45, p < .01) than the anxious group (p < .01) and the non-clinical group (p < .01).

The results of a one-way ANOVA and post-hoc Scheffé tests revealed a significant difference between groups on the RAS (F(2, 115) = 12.68, p < .01), with the young people in the OCD group scoring significantly higher than the anxious group (p < .01) and the non-clinical group (p < .01). Scores on the TAF-L0 were not normally distributed and could not be transformed; a Kruskal–Wallis H test was significant (H(2,115) = 24.75, p < .01). Mann–Whitney U tests identified significant differences between the OCD and anxious group (z(56) = −2.57, p = .01) and the OCD and non-clinical group (z(90) = −1.82, p < .01). The anxious group also had significantly higher scores than the non-clinical group (z(90) = −2.32, p = .02). On the MPS the only subscales that had significant differences were the concern over mistakes subscale (F(2, 115) = 4.71, p = .01) and the parental expectations subscale (F(2, 115) = 3.75, p = .03). On the concern over mistakes subscale the OCD group scored significantly higher than the non-clinical group (p = .02) but not the anxious group. On the parental expectations subscale the non-clinical group scored significantly higher than the OCD group (p = .05) but did not differ significantly from the anxious group. The groups did not differ on the Parental Criticism subscale as predicted from studies with adults.

Relationship between variables

Correlations between the measures are presented in Table 3. There are modest correlations between the variables that were found to distinguish the OCD group. These variables also correlate with LOI-CV yes/no. Personal Standards (MPS-PS) and Organisation (MPS-O) also had low correlations with this measure of OCD.

Regression analysis

A standard multiple regression with simultaneous entry was conducted with RAS, TAF-LO and MPS-CM as predictors for obsessive-compulsive symptoms (LOI-CV yes/no). The data from all participants was used (N = 118). As TAF-LO was not normally distributed and could not be transformed, the variable was dichotomised as recommended by Tabachnick and Fidell (1996). The sample was divided into those who rated all questions on this measure as ‘strongly disagree’ (0) and those who rated one or more questions as ‘slightly disagree’ (1), ‘neutral’ (2), ‘slightly agree’ (3) or ‘strongly agree’ (4). As there were many individuals who rated all questions as 0 on this measure (43.2%), this seemed the most meaningful dichotomisation. The model had an R² of .39 (F(3, 114) = 23.85, p < .01); only RAS made a significant contribution to symptom severity, although Concern over Mistakes approaches significance (see Table 4).
Discussion

The results of this study demonstrate that young people with OCD have higher levels of inflated responsibility than young people with other anxiety disorders and a non-clinical group. In addition, inflated responsibility was the only significant predictor of OCD. These results map on to the findings with adults and the mean scores obtained in this study for the three groups are very close to those reported for adults (Salkovskis et al., 2000). The findings support Salkovskis et al.’s (1999) proposition that inflated responsibility is associated with OCD in young people. It remains to be established if cognitions associated with inflated responsibility precede the development of OCD, as predicted by Salkovskis et al. (1999) or emerge following the onset and only have a maintaining role.

Some recent studies have found thought-action fusion to be associated with other anxiety symptoms as well as OCD (Muris et al., 2001; Rassin et al., 2001). This study, however, found that TAF-LO was significantly higher in the OCD group compared with the anxious group and the non-clinical group, suggesting a specific association. The anxious group, however, had scores that were significantly higher than the non-clinical group and this may indicate that TAF-LO has a minor role in anxiety disorders in young people. It is of interest to note that the mean total score obtained by the OCD group in this study ($M = 7.82$) was higher than that observed in studies with adults who have OCD (e.g., Rassin et al., 2001, $M = 4.43$; Shafran et al., 1996, $M = 4.77$). Scores for the anxious group were broadly similar to the scores obtained in studies with adults (Rassin et al., 2001; Shafran et al., 1996). The non-clinical group’s total score ($M = 2.25$) was similar to scores reported by Shafran et al. (1996) for students ($M = 2.59$) but higher than scores found for a general non-clinical population ($M = 1.03$). The findings suggest that TAF-LO may be more important in the presentation of OCD in young people and may be more prevalent in young people generally. This difference may reflect developmental influences. For example, it may be associated with the emergence of formal operational thinking at the age of 11 years which is characterised by abstract reasoning, hypothetical deduction and metacognition, including the ability to reflect on one’s own thinking (Inhelder & Piaget, 1958). Elkind (1967) has argued that the emergence of formal operations results in young people believing that they are the focus of others’ attention and that they are unique and omnipotent. This cognitive backdrop may make young people more likely to report thought-action fusion. Thought-action fusion has also been associated with a greater sense of uncertainty (Keinan, 1994). Uncertainty is inevitable for adolescents and young adults and may help explain some of these data.

On the MPS, concern over mistakes was the only subsection that was significantly higher for the OCD group compared to the non-clinical group. The

<table>
<thead>
<tr>
<th>Table 3 Correlations between measures for all three groups combined</th>
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<tr>
<td></td>
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<tr>
<td>LOI-CV yes/no</td>
</tr>
<tr>
<td>RAS</td>
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<tr>
<td>TAF-LO*</td>
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<tr>
<td>MPS-CM</td>
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<td>MPS-PS</td>
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<tr>
<td>MPS-PC</td>
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<td>MPS-PE</td>
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</tbody>
</table>

*Significant at 0.05 level. **Significant at 0.01 level.

*Correlations with TAF-LO were calculated using Spearman’s rho Correlation Coefficient. All other correlations were calculated using Pearson’s Product Moment Correlation Coefficient.

Abbreviations:
LOI-CV yes/no (Leyton Obsessional Inventory – Child Version yes/no rating).
RAS (Responsibility Attitude Scale).
TAF-LO (Thought-Action Fusion – Likelihood Other).
MPS (Multidimensional Perfectionism Scale).
CM (Concern Over Mistakes).
PS (Personal Standards).
PC (Parental Criticism).
PE (Parental Expectations).

<table>
<thead>
<tr>
<th>Table 4 Multiple regression on RAS, TAF-LO and MPS-CM predicting LOI-CV Yes / no scores</th>
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<tbody>
<tr>
<td>Independent variables                                                                  $\beta$</td>
</tr>
<tr>
<td>Responsibility Attitude Scale                                                          .49</td>
</tr>
<tr>
<td>Thought–Action Fusion – Likelihood Other                                               .13</td>
</tr>
<tr>
<td>Multidimensional Perfectionism Scale (Concern Over Mistakes)                           .06</td>
</tr>
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</table>

($R^2$ of .39 ($F(3, 114) = 23.85, p < .01$).

Discussion

The results of this study demonstrate that young people with OCD have higher levels of inflated responsibility than young people with other anxiety disorders and a non-clinical group. In addition, inflated responsibility was the only significant predictor of OCD. These results map on to the findings with adults and the mean scores obtained in this study for the three groups are very close to those reported for adults (Salkovskis et al., 2000). The findings support Salkovskis et al.’s (1999) proposition that inflated responsibility is associated with OCD in young people. It remains to be established if cognitions associated with inflated responsibility precede the development of OCD, as predicted by Salkovskis et al. (1999) or emerge following the onset and only have a maintaining role.

Some recent studies have found thought-action fusion to be associated with other anxiety symptoms as well as OCD (Muris et al., 2001; Rassin et al., 2001). This study, however, found that TAF-LO was significantly higher in the OCD group compared with the anxious group and the non-clinical group, suggesting a specific association. The anxious group, however, had scores that were significantly higher than the non-clinical group and this may indicate that TAF-LO has a minor role in anxiety disorders in young people. It is of interest to note that the mean total score obtained by the OCD group in this study ($M = 7.82$) was higher than that observed in studies with adults who have OCD (e.g., Rassin et al., 2001, $M = 4.43$; Shafran et al., 1996, $M = 4.77$). Scores for the anxious group were broadly similar to the scores obtained in studies with adults (Rassin et al., 2001; Shafran et al., 1996). The non-clinical group’s total score ($M = 2.25$) was similar to scores reported by Shafran et al. (1996) for students ($M = 2.59$) but higher than scores found for a general non-clinical population ($M = 1.03$). The findings suggest that TAF-LO may be more important in the presentation of OCD in young people and may be more prevalent in young people generally. This difference may reflect developmental influences. For example, it may be associated with the emergence of formal operational thinking at the age of 11 years which is characterised by abstract reasoning, hypothetical deduction and metacognition, including the ability to reflect on one’s own thinking (Inhelder & Piaget, 1958). Elkind (1967) has argued that the emergence of formal operations results in young people believing that they are the focus of others’ attention and that they are unique and omnipotent. This cognitive backdrop may make young people more likely to report thought-action fusion. Thought-action fusion has also been associated with a greater sense of uncertainty (Keinan, 1994). Uncertainty is inevitable for adolescents and young adults and may help explain some of these data.

On the MPS, concern over mistakes was the only subsection that was significantly higher for the OCD group compared to the non-clinical group. The
scores obtained by the anxious group fell between the two other groups, but did not differ significantly from either. Studies with adults have found concern over mistakes to be high in individuals with OCD and in those with other anxiety problems (Antony et al., 1998; Frost & Steketee, 1997). The difference in this study appears to relate to the anxious group attaining lower scores than studies with adults with panic disorder (Antony et al., 1998; Frost & Steketee, 1997) or social phobia (Antony et al. 1998; Saboorchi et al., 1999). The OCD group and the non-clinical group had scores that were comparable to those observed in adult studies. This is an interesting finding but is not easily explained. There may be specific developmental shifts associated with the presentation of anxiety or the findings may be related to some aspect of the study’s design; further investigation is required. Concern over mistakes could link to inflated responsibility and thought–action fusion because all are associated with a fear of being judged by others or having intolerable anxiety if they make an error.

Parental criticism was not significantly higher in the clinical groups as predicted from studies with adults and parental expectation was significantly lower in the OCD group compared with the non-clinical group. The cognitive model emphasises the importance of belief systems about parents being important in the development of disorders (Beck, 1976) but there is no evidence for this in this study. The difference in the findings here compared to the adult literature could be accounted by a number of factors. Adults with anxiety disorders may only perceive their parents as critical retrospectively but these beliefs may not have existed or been accessible at the conscious level when they were children. Alternatively, there may have been a selection bias against young people who had these beliefs about their parents, with these families choosing not to take part in the study.

The findings broadly replicate studies with adults who have OCD, suggesting that there is continuity in these cognitive appraisals from adolescence to adulthood. There are, however, some interesting differences in the extent to which some of these beliefs are held. Further studies are required that directly compare individuals at different points across the lifespan or collect longitudinal data. These data could enrich cognitive models by providing a developmental perspective on risk factors for specific cognitions.

The study demonstrates that these questionnaires are valid when used with young people and may be helpful in assessment and evaluating change in therapy. The findings support the incorporation of cognitive techniques in the treatment of young people with OCD. These may include the use of responsibility pie charts (van Oppen & Arntz, 1994), thought–action defusion (Wells, 1997) and normalisation of intrusive thoughts (Freeston et al., 1996) as a precursor or adjunct to E/RP. Using generic cognitive techniques to address concern over mistakes is also likely to be important with some individuals. Within E/RP it is also important that the therapist remains aware of whether or not the child is passing their sense of responsibility to the therapist or a parent in order to complete tasks. If this is occurring it will prevent behavioural tasks resulting in any cognitive change and is likely to compromise improvements in symptoms. Consideration of the other belief domains highlighted by the Obsessive Cognitions Working Group (1997) would be of interest in future studies. Further case studies with young people that expand on the work completed by Williams et al. (2002) and Shafran and Somers (1998) is an important next step. Randomised control trials are also critical to evaluate if the cognitive component adds to the efficacy of treatment as has been found in adults (McLean et al., 2001; Van Oppen et al., 1995).

The current study is limited by a number of factors. Like many questionnaire studies, only a proportion of families asked to participate agreed, so the participants may not be representative of the sampled population. It is impossible to know if the children who decided to participate had different profiles from those who did not. The OCD group was treated as homogenous and there was no attempt to evaluate tic disorders that may be related to a distinctive subgroup in children (Eichstedt & Arnold, 2001). The anxious group was also treated as homogenous, although adult studies have found differences in cognitive appraisals associated with specific disorders. The study did not control for anxiety and depression and there is some evidence from studies with adults that some of the measures evaluated here (e.g., TAF-LO, MPS) would be associated with these symptoms and, therefore, future studies may consider evaluating them.

In conclusion, this study has demonstrated that the use of questionnaires designed to assess cognitive appraisals in adults with OCD can be used with young people. The findings indicate that young people with OCD and adults with the disorder hold similar cognitive appraisals. There are, however, possible developmental shifts in the extent to which these beliefs are held and this warrants further investigation. Consideration of cognitive appraisals in therapy and future research with young people with OCD could lead to fruitful advances in both theory and practice.

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