Functional Impairments of South African Children and Adolescents with Obsessive-Compulsive Disorder

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Word Count: 8228

ABSTRACT

This research aimed to increase understanding regarding functional impairment in children and adolescents with Obsessive-Compulsive Disorder (OCD). Eight South African children and adolescents with OCD participated in the study. The Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version (KSADS-PL), the Children’s Global Assessment Scale (CGAS), the Children’s Yale-Brown Obsessive Compulsive Scale (CY-BOCS) and the Child Obsessive-Compulsive Impact Scale-Revised (COIS-R) were used to assess the children and adolescents’ past and current psychopathology, OCD symptom severity and OCD-related functional impairment. Children and adolescents rated more problems as being significant than did their parents. In addition, parents reported that the most significant domain of impairment was in the school domain; child reports, in contrast, showed that the most significant impairments occurred in the school and social domains. Parents and children differed in terms of their ratings regarding the most significant individual functional problems. These findings differ from those of previous North American and European studies in this domain, and thus provide the rationale for future research that will examine the effect of culture on childhood OCD-related functional impairment. This future research will have important implications for the diagnosis and treatment of children with OCD in South Africa.

Keywords: Obsessive-Compulsive Disorder; children; adolescents; functional impairment; diagnosis; treatment

Obsessive-Compulsive Disorder can be a devastating psychiatric illness that can impair a child's development in school, social, and family domains (Piacentini, Bergman, Keller, & McCracken, 2003; Warner & Pottick, 2006). However, the nature and extent of functional impairments in South African children and adolescents with Obsessive-Compulsive Disorder (OCD) are not yet known. However, children/adolescents with OCD from the United States of America and from Norway and Sweden are functionally impaired in multiple domains (home, academic, and social). Interestingly, Scandinavian individuals' impairments are mainly in the home domain, whereas American children and adolescents have more areas of impairment in the home and school/academic domain compared to the social domain (Piacentini et al., 2003; Valderhaug & Ivarsson, 2005). The extant research therefore suggests that functional impairments due to OCD may differ across cultures. These differences are important, as research also suggests that, in childhood and adolescence, functional impairment has critical implications for the diagnosis and treatment of OCD (Angold, Costello, Farmer, Burns, & Erkanli, 1999; Kramer et al., 2004; Valderhaug & Ivarsson, 2005). In particular, these differences need to be considered in formulating treatment plans to adequately address the pertinent areas of functional impairment.

LITERATURE REVIEW

OCD: Epidemiology and Clinical Presentation

A recent epidemiological study conducted in the United Kingdom estimated that the prevalence of OCD increases exponentially with age. The study found, for example, that there was a prevalence of 0.21% in the 11-12 year old age group, compared to a prevalence of 0.63% in the 13-15 year old age group (Heyman et al., 2001). A similar study conducted in the United States estimated a prevalence rate of 1.72% in a sample of children aged between 9 and 17 years old (Rapoport et al., 2000).

The *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-TR; American Psychiatric Association (APA), 2000) describes the features of OCD. The manual describes obsessions as consistent thoughts, images, impulses or ideas that cause an individual anguish. Compulsions, in contrast, are repeated behaviours or mental acts that most times result from obsessions and therefore are often used to reduce the unease and worry caused by those obsessions. (See Appendix A for complete diagnostic criteria.)

With regards to children, OCD normally begins in adolescence or young adulthood, but may be first diagnosed during childhood[1]. The disorder is more frequently diagnosed in boys (DSM-IV-TR; APA, 2000).

DSM-IV-TR makes clear that diagnosed OCD is associated with impairments in occupational, social, and interpersonal domains (APA, 2000). For example, a person with OCD may avoid certain social situations because those situations provoke their obsessions or compulsions. With regard to children, the manual indicates that there have been reports that schoolwork is negatively affected, but that lack of concentration at school is a bigger problem caused by OCD than are general problems with schoolwork. Also, the manual states that children are more likely to conduct their rituals at home than in other places.

Functional Impairment in OCD

The assessment of the functional impairment associated with obsessions and/or compulsions is one of the deciding factors with regard to deciding whether an individual is diagnosed with OCD or is determined to experience sub-clinical OCD (Angold et al., 1999; Valderhaug & Ivarsson, 2005). In addition, Kramer et al. (2004) point to the importance of correctly evaluating an adolescents' functional impairment. They indicate that there are sometimes disagreements between a parent's rating of their adolescent's functional impairment in a particular domain and the adolescent's rating of their functional impairment in the same domain. Knowing the source(s) of this disagreement may affect treatment. For instance, if a parent's report is different to that of the adolescent because the adolescent hides a behavior and the parent consequently does not know about that behavior, this fact can inform treatment. Therefore, Kramer et al. (2004) emphasize the importance of correctly evaluating an adolescent's functioning and functional impairments, so that they can be correctly diagnosed, enrolled in a suitable treatment programme, and have their treatment progress monitored in an appropriate manner.

Although numerous studies regarding functional impairment in OCD have been conducted in adult samples (e.g., Calvocoressi et al., 1995; Cooper, 1996; Koran, Thienemann, & Davenport, 1996), the range and degree of specific OCD functional impairment have not been extensively documented in children (Piacentini et al., 2003). Additionally, most of the studies of functional impairment in children and adolescents with OCD suffer from numerous methodological limitations.

For instance, Allsopp and Verduyn (1990) and Toro, Cervera, Osejo, and Salamero (1992), analyzed clinical descriptions of adolescents with OCD. Although these studies suggest that children and adolescents with OCD show marked functional impairment (e.g., relationship and academic problems), the fact that the authors relied on clinical records and not objective measures to assess the nature and extent of that impairment is problematic: clinical records are highly subjective and are therefore not always a valid representation of functional impairment in the child/adolescent with OCD. Furthermore, Allsopp and Verduyn (1990) indicate that there are limitations (e.g., incomplete data, clinician bias) to conducting a retrospective study of case-note data.

Given such methodological limitations, it is true to say that there is little reliable and valid knowledge about the functional impairments of children and adolescents with OCD. Some recent studies have, however, attempted to address this gap in the literature.

For instance, Piacentini et al. (2003) studied a sample of 151 clinic-referred children and adolescents with primary OCD. The sample ranged in age from 5 to 17 years old (mean = 11.8). Eighty-three percent of the participants were Caucasian, and 68% had a co-morbid disorder. Both the child/adolescent and his/her primary caretaker completed a checklist in order to assess the impact of OCD on the child’s school, social and family functioning. Results suggested that OCD was associated with significant and invasive impairments in academic, home and social functioning. For example, in the academic domain, children and adolescents with OCD frequently struggled to concentrate on school work. In home life, getting ready for bed at night was a problem for some; in the social domain, being with a group of strangers was often a problem. Interestingly, more areas of impairment were reported with regard to home/family and school/academic functioning than were with regard to social functioning. Furthermore, the authors found that parents were more likely than their children to rate as significant, specific problems in the home/family and school/academic areas. This discrepancy shows that to comprehensively understand functional impairments associated with OCD one must consider parent reports as well as child/adolescent reports.

In the study described above, age and gender did not affect the prevalence rates of any specific impairments. The authors note that this finding may lend support to the idea that OCD is a heterogeneous disorder, affecting functioning differently for different children. The most significant problem that emerged (difficulty concentrating on schoolwork) was only endorsed by 47% of parents and 37% of the children/adolescents. Nearly all children/adolescents pointed out at least one significant problem area, however, and most items were endorsed by at least a modest number of participants. Thus, the authors suggest that the psychosocial functioning of each child/adolescent be evaluated independent of other cases.

In addition, there was a modest positive correlation between clinician-rated OCD severity (i.e., ratings on clinician-rated assessment scales) and number of impairments that were rated as significant problems by either parent or child/adolescent. Piacentini et al. (2003) indicate that this finding provides “some support for the validity of interference ratings and is consistent with the clinical observation that severity of illness and psychosocial dysfunction go hand in hand” (p. S67).

Valderhaug and Ivarsson (2005), using a Scandinavian sample, replicated the design of the study described above. Their sample consisted of 68 participants, ranging in age from 8 to 17 years old (mean = 12.9), with primary OCD. Sixty-eight percent of the sample had one or more co-morbid disorders (e.g., Tourette’s Syndrome, other anxiety disorders, depression, or disruptive disorders). They used the same checklist that Piacentini et al. (2003) had used. Unlike the previous study, however, they found that functional impairments mostly occurred at home, but also often occurred in school and social domains.

Also, in contrast to Piacentini et al.’s (2003) finding that age and gender did not impact the prevalence rates of any specific impairments, Valderhaug and Ivarsson (2005) found that (a) girls reported more areas of functional impairment than did boys, (b) adolescents (ages 13-17 years) reported more areas of impairment than did children (ages 8-12 years), and (c) parent reports suggested a positive association between age and number of impaired areas in girls, but a negative association between age and number of impaired areas in boys. Furthermore, Valderhaug and Ivarsson (2005) reported that individuals with co-morbid disorders reported more areas of impairment, whereas Piacentini et al. (2003) did not report such a finding. In addition, Valderhaug and Ivarsson (2005) found that items that functional impairments were most severe in were situations related to bedtime, activities that required concentration, and building or maintaining social relations. In contrast, Piacentini et al. (2003) found that the most significant functional problem in their sample was difficulty concentrating on schoolwork.

Finally, Valderhaug and Ivarsson (2005) replicated the earlier finding that parents tend to report higher rates of impairments than do their children. However, Valderhaug and Ivarsson (2005) also found that when children/adolescents reported a high score for impairments, so did adults, even though parent ratings of impairment were higher than were child/adolescent self-ratings. (See Table 1 for a comparison of these two studies.)

Therefore, it is clear that the findings of these studies are similar. For example, they both report that parents rate problems, as more significant than do children. However, there are some important differences. They reported different domains of impairment, as the most significant. In addition, with regard to specific problem areas, they differed in their findings.

Limitations of recent studies. Piacentini at al. (2003) indicated that a major limitation of their study was that it required replication in independent samples containing people of different races/ethnicities/nationalities; their study was conducted with a wholly American sample that was predominantly Caucasian. The importance of conducting cross-cultural studies in this domain is illustrated by the differences in findings between Piacentini et al. (2003) and Valderhaug and Ivarsson (2005). Moreover, cultures on an individual basis can be shown through aspects such as ethnicity, race, religion, gender, sexual orientation, regional affiliation, socio-economic status, and disability status (Allen, 2007). Thus, if one wants to examine whether or not culture plays a role in OCD-related functional impairment, one needs to study the impact that all these cultural features have on childhood OCD-related functional impairment.

Further, Piacentini et al. (2003) note that they did not compare their OCD sample to another group. For instance, they might have employed one or more of the following control groups: (i) children and adolescents with no form of psychopathology (i.e., healthy, typically developing children/adolescents), (ii) children and adolescents with psychiatric disorders other than OCD, and (iii) children and adolescents with previously-undiagnosed OCD.

Because they did not employ any of these control groups, they admit that they cannot be conclusive with regards to their findings.

Another clear limitation of the Piacentini et al. (2003) study was that they did not account for the effect of ADHD co-morbidity on their results. The importance of this co-morbidity factor is illustrated by Sukhodolsky et al. (2005), who found that when attention-deficit hyperactivity disorder (ADHD) is present as a co-morbid condition with OCD, functional impairment in social, school and family domains are more significant.

A limitation of the Valderhaug and Ivarsson (2005) study is that they drew their sample from two nationally different groups, a strategy that caused problems when attempting to draw conclusions from the data. With regard to the differences between the two national groupings, the authors note that “the SS [Swedish sample] had a higher proportion of females, and had higher rates of comorbid tics and Tourette’s syndrome, usage of OCD-specific medication, and parents in the SS had higher ratings of child impairment than the NS [Norwegian Sample]” (p. 172). They make clear that these differences between the groups may be due to the fact that different sampling methods were used in composing the groups. For instance, participants with Tourette’s syndrome were excluded from the Norwegian sample; also, the Norwegian sample was drawn from primary health care services, whereas the Swedish sample came from a secondary care centre.

Both studies described above used the same research instrument to measure OCD-related functional impairment. Although useful, that measure did result in some of the limitations mentioned above.

Child OCD Impact Scale (COIS)

The COIS is a parent- and child-report questionnaire that assesses OCD-related functional impairment in children and adolescents that have been diagnosed with OCD (Piacentini & Jaffer, 1999, as cited in Piacentini et al., 2003). In both the Piacentini et al. (2003) and the Valderhaug and Ivarsson (2005) studies, the researchers found that the COIS correlated well with clinician-rated measures of OCD severity and global impairment. In addition, Valderhaug and Ivarsson (2005) found that it contributes unique information about impairment associated with OCD. Moreover, both studies reported good agreement between

COIS parent and child reports. The common advice drawn from the two studies was that other researchers should use the COIS in epidemiological and treatment outcome studies, and that clinicians should use it in clinical practice when deciding whether a child or adolescent has OCD.

Despite these positive aspects of the COIS, its use in the studies described above was not without problems. For instance, Valderhaug and Ivarsson (2005) found that the degree of functional impairment associated with OCD, as measured by the COIS, was influenced by co-morbid disorders. In other words, the COIS is unable to distinguish between functional impairments that arise as a result of OCD and those that arise as a result of another, co-morbid disorder.

Furthermore, Valderhaug and Ivarsson (2005) make clear that different versions of the COIS (e.g., one for adolescents and one for children) could be useful. The use of different versions may allow the contents of each item on the questionnaire to be better tailored to the developmental stage and reading abilities of different age groups.

Partially in response to the above critiques, and partially in response to “a growing call for evidence-based assessments of child and adolescent anxiety disorders” (Silverman & Ollendick, 2005, p. 15, as cited in Piacentini, Peris, Bergman, Chang, & Jaffer, in press), Piacentini et al. (in press) developed a revised version of the COIS (the COIS-R). This instrument has improved psychometric properties. For instance, the COIS was divided into 3 factors (viz., school, social, home/family) that had never been empirically tested. To address this shortcoming, Piacentini et al. (in press) used exploratory factor analysis and found that 4 factors (viz., daily living skills, family, social, and school) described the items on the COIS-R parent report form of the questionnaire. Similarly, 3 factors (viz., school, social and activities) described the items on the COIS-R child/adolescent report form. The entire parent form of the COIS-R is shown in Appendix B and the child form in Appendix C. Items on the parent form subsumed under the school factor are items 31, 7, 1, 20, 28 and 32; under the family/activities factor are items 12, 18, 21, 17, 8, 14, 23, 15 and 4; under the social factor are items 6, 29, 5, 22, 16, 25, 2, 27, 11, 26, 9, 3 and 24; and under the daily living skills factor are items 30, 33, 13, 19 and 10. Items on the child form subsumed under the school factor are 31, 32, 33, 20, 28, 1, 10, 7, 24 and 3; under the activities factor are 9, 21, 18, 17, 8, 12, 14, 19, 23, 30, 13, 27, 6, 29, 16, 4 and 15; and under the social factor are 22, 11, 5, 2, 26 and 25.

The finding that different factors describe the items on the child/adolescent and parent report forms shows that both reports must be used to fully understand the functional impairment profile of a child/adolescent with OCD. Moreover, the authors indicate that the specific constitution of each factor makes clear possible useful future applications of the measure. For instance, one might compare the parent and child ratings on the COIS-R school factor, and thus come to a more complete understanding of the child's OCD-related functional impairment.

Piacentini et al. (in press) found that both report forms (i.e., parent and child form) are developmentally robust. This means that parent and child forms had similar correlations with the child's age, which indicates that the measure is suitable to assess the functional impairment of children of different ages. This addresses Valderhaug and Ivarsson's (2005) recommendation that separate measures should be developed for the child and adolescent. Furthermore, analysis of the revised measure showed that both parent and child/adolescent report forms add to our understanding of functional impairment that is specific to childhood OCD. Thus, measuring a child's OCD-related impairment, over and above the impairment which is related to the severity the child's OCD and/or their co-morbid disorder/s. This finding regarding co-morbidity addresses Valderhaug and Ivarsson's (2005) finding that COIS scores are influenced by co-morbid disorders.

Piacentini et al. (in press) also found that both the parent and child versions of the COIS-R had good internal consistency, concurrent validity and 2-week test-retest reliability. Thus, they claim that the COIS-R "fills an important methodological gap in the field" (p. 15). Nonetheless, the instrument still has some limitations, which will be discussed later in this paper.

RATIONALE FOR THE CURRENT RESEARCH

Little is known with regard to OCD-related functional impairment in children/adolescents. In addition, the most methodologically sound studies that have examined OCD-related functional impairment have differed in their findings: North American children/adolescents' functional impairments were apparently somewhat different to that of Scandinavian children/adolescents. These findings demonstrate that culture may play a role with regard to an individual's OCD-related functional impairments. Because South Africa is a multi-cultural society, by conducting a study in this context one might be able to examine the effects of culture (as expressed through, for example, religion, race, and socio-economic status) on OCD-related functional impairment.

The value of such a study is clear, in that the DSM-IV-TR states that religious and cultural beliefs may play a role in the types of themes and manifestations of obsessions and compulsions displayed by the individual with OCD (APA, 2000). For instance, a study of people with OCD in Bali showed that Balinese culture substantially contributed to the formation of those people's OCD-related symptoms (Lemelson, 2003). Another recent study also found that culture may have an impact on the content of OCD obsessions (Fontenelle, Mendlowicz, Marques, & Versiani, 2004). Although the relationship between the types of OCD symptoms and OCD-related functional impairment has not yet been explicated, there is enough in the extant literature to suggest that culture may play a role in OCD-related functional impairment.

Another valuable aspect of the current study is that it will use the COIS-R to measure functional impairment in children and adolescents with OCD. As noted previously, earlier studies of OCD-related functional impairment in this population used the COIS, which the authors acknowledge is a flawed instrument.

SPECIFIC AIMS

This is a descriptive study. The study specifically aimed to describe the functional impairments of South African children and adolescents with OCD and compare those to the functional impairments of American and Scandinavian children with OCD.

DESIGN AND METHODOLOGY

Design

This is a clinical phenomenological[2] study, using quantitative methods. I utilized instruments that have been used by previous researchers in this field. The study consisted of two semi-structured interviews that were conducted with the child and parent; and a self-report questionnaire that both the child and parent completed.

Participants

The primary researcher set out to involve as many children as possible in the study. Thus, many different sources were used in order to recruit participants for the study. The four primary sources were these: (1) The Medical Research Council (MRC) Anxiety and Stress Disorders Research Unit, based in the Department of Psychiatry at the University of Stellenbosch (US). (2) Private-practice clinicians (psychiatrists and psychologists) in Cape Town and Durban, many of whom agreed to advertise the study to their patients by placing notices in their waiting rooms and by giving the parents of their patients a letter describing the study. (3) Various newspapers in Kwazulu-Natal and the Western Cape, several of whom agreed to include an article about OCD and the study. (4) Posters advertising the study were placed in Groote Schuur Hospital, the Departments of Psychiatry at UCT and US, the Psychology Department at the University of Kwazulu-Natal, and the UCT Child Guidance Clinic. (5) A notice informing people about the study and providing contact details for the researchers was placed on the UCT website. (6) Some children were also recruited by means of others who had participated in the study (i.e., snowballing method of recruitment).

The final sample of participants consisted of 8 children (3 boys and 5 girls). They ranged in age from 6-17 years (mean = 13, SD = 3.33).

Exclusion and Inclusion Criteria. Some of the children that took part in my study had not been previously diagnosed with OCD and some had been previously diagnosed. In all cases, however, a current diagnosis of OCD was confirmed using the Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version (K-SADS-PL; Kaufman et al., 1997). If the child met the criteria for a past, but not current, diagnosis of OCD, he/she was excluded from the study. Thus, the child had to have a current diagnosis of OCD to take part in the study.

Children with other co-morbid disorders (aside from psychotic disorders) were not excluded from the study. Consistent with the samples described by Valderhaug and Ivarsson (2005) and Piacentini et al. (2003), and with the description of OCD characteristics in the DSM-IV-TR (APA, 2000), most of the children in this study's sample presented with co-morbid psychiatric disorders (see Figure 1). Furthermore, the inclusion of children with co-morbid disorders did not affect my findings, because as described above the COIS-R measures functional impairment that is specific to OCD (Piacentini et al., in press).

The age range of my sample was limited to 6-17 years. There were two primary reasons for this criterion: First, the instruments used were designed to be used with this age group; second, the present study's aim was to assess functional impairment in childhood and adolescent OCD.

Materials

The K-SADS-PL (Kaufman et al., 1997) is a semi-structured diagnostic interview that assesses current (past month) and past episodes of psychopathology in accordance with DSM-III-R and DSM-IV diagnostic criteria. Both children and parents provide information to the interviewer.

Kaufman et al. (1997) reported on the psychometric properties of the instrument. They found that, overall, the measure is reliable and valid in making child psychiatric diagnoses, particularly with regard to affective and anxiety disorders. More specifically, they reported that test-retest reliability was very good for present and/or lifetime diagnoses of major depression, any bipolar disorder, generalized anxiety disorder, posttraumatic stress disorder, and attention-deficit hyperactivity disorder, as well as conduct disorder and oppositional defiant disorder. They also found that the measure has concurrent validity and inter-rater reliability between its two different components used to produce a diagnosis.

The *Children's Global Assessment Scale* (CGAS; Shaffer et al., 1983) is designed to measure the overall severity of functional impairment in children aged 4-16 years. The instrument requires the clinician or researcher to rate the child's functioning on a 0-100 scale, where 0 indicates acute functional impairment and 100 no serious functional impairment. Individuals who score above 70 are deemed healthy. The instrument's developers report that it has good test-retest and inter-rater reliability and good discriminant and concurrent validity (Shaffer et al., 1983). Independently, a review of studies conducted on the CGAS found that reliability of the measure ranged from adequate to good (Schorre & Vandik, 2004). Additionally, although Piacentini et al. (in press) indicate that findings with regard to concurrent validity of the

CGAS have been inconsistent, Steinhausen and Metzke (2001) found positive correlations between the CGAS and other measures of psychological impairment.

The *Children's Yale-Brown Obsessive Compulsive Scale* (CY-BOCS; Scahill et al., 1997) is a semi-structured, clinician-rated measure of how critical a child/adolescents' OCD symptoms were during the week prior to the test. The clinician interviews both the parent and the child (either together or separately, depending on the age and emotional state of the child). The 10 items on the interview are divided into a 5-item obsession checklist and a 5-item compulsion checklist. Each item is scored on a Likert-type scale from 0 to 4, where higher scores indicate a more significant problem with regard to the child/adolescent's obsessions/compulsions. Thus, the closer the overall score is to the maximum of 40, the more acute the child/adolescents' OCD symptoms were in the past week. The *Clinical Global Impression Scale* (CGI) is a part of CY-BOCS and contains one item, rated on a 0-6 scale where 0 indicates that the child/adolescent does not have an illness and 6 indicates that he/she has an acute illness (Valderhaug & Ivarsson, 2005).

Scahill at al. (1997) found that there was good inter-rater reliability between total and subscale scores of the CY-BOCS. They also concluded that the test generates valid and reliable subscale and total scores, but that reliability and validity seem to be affected by age and by problems associated with bringing together information obtained from parents and children. With regard to the psychometric properties of the scale being affected by age, Scahill et al. (1997) demonstrate that the ability and willingness of a child to discuss their internal experience is variable, and that this variability may be more evident in younger children. In addition, King and Scahill (1995, as cited in Scahill et al., 1997) report that a correct assessment of the severity of OCD symptoms in children can be difficult because of developmental and linguistic issues.

As described above, the COIS-R (Piacentini et al., in press) is used to assess the functional impairment associated with OCD. It consists of separate parent and child report forms, each containing 33 items. Children are asked to rate how their OCD has caused problems in different areas of their lives in the past month, on a scale where 0 is "not at all" and 3 is "very much." The parent form and child form contain similar items. However, there are some items unique to each measure.

Piacentini et al. (in press) reported that both parent and child forms had good test-retest reliability, internal consistency, and concurrent validity. In addition, there were associations between the *COIS-R* and the *CGAS* when co-morbidity and the gravity of the OCD were controlled for. The authors make clear that this finding indicates that the COIS-R assesses the functional impairments that are not simply due to other co-morbid disorders and/or to the gravity of the child/adolescents' OCD. Thus, they conclude that the instrument is useful for evaluating the impact of OCD symptoms on a child or adolescent's functioning.

The K-SADS-PL, CY-BOCS and CGAS have been widely used internationally (e.g., Piacentini et al., 2003; Storch et al., 2006; Valderhaug and Ivarsson, 2005) and the COIS-R has proved to be a reliable and valid measure of children's OCD-related functional impairments with a North American sample (Piacentini et al., in press). In addition, the K-SADS-PL has been used in South Africa before (e.g., Suliman, Kaminer, Seedat, & Stein, 2005). Thus, there is no a priori reason to expect that these measures are not appropriate for use in South-Africa.

Procedure

As described above, the child and the parent had to be interviewed separately; thus, two people were needed to conduct the interviews. A Psychology Masters student assisted the primary researcher with her interviews. In addition, in order to comply with the regulations set out by the developers of the measures, the primary researcher and the research assistant were trained by a clinical psychologist (the supervisor) to use the abovementioned measures.

In most cases, the primary researcher interviewed the child while the research assistant interviewed the parent. However, two of the children only spoke Afrikaans. In those cases, the research assistant, who is fluent in Afrikaans, interviewed the child while the primary researcher interviewed the parent.

Some of the interviews were conducted at the University of Cape Town (UCT); others were conducted in the homes of the participants. The participants chose which venue was more convenient for them. Participants were reimbursed for travel costs associated with the study.

All study procedures were approved by the Ethics Committee of the UCT Department of Psychology.

The interviews. The parent and the child were each interviewed twice. Each interview lasted approximately 150 minutes. The two interviews were conducted on separate days.

In the first interview, informed consent was obtained from the parents; the child completed an assent form. The parents were provided with a copy of the informed consent document and the assent form, which contained a copy of the primary researchers' contact details should they have questions at a later stage. Any questions that the participants had at that point were answered by the researchers.

After the form was completed, the parents completed a demographic questionnaire (see Appendix D). The primary researcher then interviewed the child and parent together in order to complete the background interview section of the K-SADS-PL (Kaufman et al., 1997). This section of the interview, which lasted approximately 25 minutes, covered the child's general health history, psychiatric history and the presenting complaint. The research assistant then interviewed the parent on the main section (screening) of the K-SADS-PL, while the primary researcher interviewed the child on the same section of the instrument. These interviews were conducted in separate rooms, so that the child and parent could not hear each others responses. These interviews lasted approximately 90 minutes. The parent and child then separately completed the COIS-R. That questionnaire took 5-10 minutes to complete.

Later that same day, the researchers discussed the scores obtained on the K-SADS-PL screening section and reached consensus on the final summary score recorded for each item. If there was uncertainty about the scoring of any item, the research supervisor was consulted. Based on the summary scores, the appropriate supplement sections of the K-SADS-PL were chosen for the next interview.

In the second interview (which, as noted above, took place on a separate day), the parent and child were again interviewed separately, completing the appropriate K-SADS-PL supplements. Once this interview was completed, they completed the CY-BOCS.

After completion of both interviews, the researchers combined the K-SADS-PL data obtained from both informants (parent and child/adolescent) in order to produce a diagnosis/diagnoses. The researchers also reached consensus with regard to the summary scores for the CY-BOCS. Lastly, they discussed the appropriate score for the child on the CGAS. This score was based on the information obtained during the two interviews and the discussions about the child that followed each interview.

These interviewing and diagnostic procedures are similar to those employed by previous researchers in the field (e.g., Piacentini et al., 2003; Valderhaug & Ivarsson, 2005). Thus, there is no reason to believe that the resulting scores obtained on the interviews and on the questionnaire are invalid representations of each case.

RESULTS

Demographic Characteristics of the Sample

The final sample consisted of 8 children (5 females and 3 males), ranging in age from 6 to 17 years. As is shown in Table 2, the sample was a relatively homogenous in terms of race, education, and home language, although there were differences with regards to religious orientation and socio-economic status.

Clinical Characteristics of the Sample

The children in this study had a mean current CGAS score of 58 (*SD* = 11.39). This score falls in the range described by Kaufman et al (1997, p. 57) as:

> <u>Variable functioning with sporadic difficulties</u> or symptoms in several but not all social areas; disturbance would be apparent to those who encounter the child in a dysfunctional setting or time but not to those who see the child in other settings.

Six of the eight children in the sample had at least one co-morbid disorder present. They presented with a number of different co-morbid disorders (see Figure 1). However, behavioural and anxiety disorders were the most prevalent co-morbid disorders (see Figure 2). With regard to other clinical characteristics of the children, one child had been previously diagnosed with Asperger's Disorder and another with Developmental Apraxia. These diagnoses were not confirmed or refuted in this study's diagnostic interviews, however.

OCD-Related Functional Problems

Items Common to Parent and Child Versions of the COIS-R. As described above, and as shown in Appendix (B and C), the COIS-R has four response options for each item. Raw scores (ranging from 0 to 4) were used to examine whether there was a significant difference between parent and child ratings on items common to the parent and child versions of the COIS-R measures. For the purposes of further data analysis (i.e., levels of parent-child agreement and disagreement), and consistent with Piacentini et al. (2003) and Valderhaug and Ivarsson (2005), these four options were converted into a dichotomous rating system by collapsing rating points 1, 2, and 3 into a single rating point (signifying "a significant problem"). The results of these analyses are presented in Table 3.

As is shown in Table 3, children and adolescents rated more problems (15 out of 23) as being significant than did their parents. Nonetheless, there were no statistically significant disagreements or rating differences on any of the items. Note that statistics are presented for both the McNemar Test and the Mann-Whitney U-Test. The latter statistic is presented because the sample violated the assumptions of former. Thus, the results of the Mann-Whitney U-Test are more accurate with regards to parent and child differences, despite the fact that the trend detected by both tests (toward a lack of significant parent-child disagreement) is identical.

As also shown in Table 3, Kappa values for parent-child agreement indicated that the parents and children failed to agree on seven of the items (Kappa < 0); had poor agreement on seven of the items (Kappa: 0.0-0.19); had fair agreement on two of the items (Kappa: 0.20-0.39); had a moderate level of agreement on two of the items (Kappa: 0.40-0.59); had a substantial level of agreement on three of the items (Kappa: 0.60-0.79); and had almost perfect agreement on two of the items (Kappa 0.80-1.00).[3]

Items Unique to Parent Version of the COIS-R. The frequencies of items rated as "significant problems" and "no problem at all" on the COIS-R-P are shown in Tables 3 and 4. The items most frequently endorsed by parents as describing "a significant problem" were these: “concentrating on his/her work”; “getting ready for bed at night”; and “getting along with his/her brothers or sisters.” Seven (87.5%) of the parents rated these three items as describing significant OCD-related problems. The item most frequently endorsed by parents as being “no problem” was “doing homework”; all of the parents thought that their child/adolescent’s OCD symptoms did not affect this area of functioning.

Items Unique to the Child Version of the COIS-R. The frequencies of items rated as “significant problems” and “no problem at all” on the COIS-R-C are shown in Tables 3 and 5. The items most frequently endorsed by children as describing “a significant problem” were these: “going shopping or trying on clothes”; “going to a friend’s house during the day”; and “doing homework.” Seven (87.5%) of the children rated these three items as describing significant OCD-related problems. The item most frequently endorsed by children as being “no problem” was “making friends”; all of the children thought that their OCD symptoms did not affect this area of functioning.

Domains of Impairment

As noted earlier, Piacentini et al. (in press) statistically showed that COIS-R-P could be resolved into four factors, each of which refers to a separate domain of impairment: School, Family/Activities, Social, and Daily Living Skills. Similarly, the COIS-R-C could be resolved into three factors: School, Activities, and Social. The average parent rating in each COIS-R-P domain of impairment is shown in Figure 3. The average child rating in each domain of impairment is shown in Figure 4.

Figure 3 shows that, although parents rated the school domain as being slightly more impaired than the other domains by their child’s OCD, they did not regard impairment in one domain as significantly more serious than in the other domains.

Similarly, Figure 4 shows that, although children/adolescents rated school and social domains as being slightly more impaired than the activities domain by their OCD, they did not regard impairment in one domain as significantly more serious than in the other domains.

Table 6 shows the number of items parents and children separately endorsed as being significant OCD-related problems. As can be seen, the parents endorsed more items in the school domain as being problematic (i.e., relative to the number of items in that domain) than in other domains. Although children endorsed more items in the activities domain as being problematic than in other domains, there was not much difference between their rating of the activities domain relative to other domains. Additionally, it is clear that children rated more items on the report as significant than did parents (22.25 vs. 20.00). This is in keeping with the result reported above.

Relationships between Measures

Results of correlation analyses of number of items rated as significant problems on the COIS-R compared to scores on other impairment or severity measures are shown in Table 7. Only three correlations between the CY-BOCS and the COIS-R were significant; all of these were correlations between the CY-BOCS and the COIS-R-C. Overall, correlations between the CY-BOCS and the COIS-R-C were higher than those between the CY-BOCS and the COIS-R-P. Of particular note is the high positive correlation (0.70) between CY-BOCS Total score and COIS-R-C Total score, in contrast to the negative correlation between CY-BOCS Total Score and COIS-R-P Total score (-0.27).

Table 7 also shows that most of the correlations between the CGAS and the COIS-R were in the expected direction (i.e., negative; the more impairment reported on the COIS-R, the lower the CGAS score should be). Of note, however, is that there was a substantially higher correlation between the COIS-R-P Total score and the CGAS (-0.56) than there was between the COIS-R-C Total score the CGAS (0.11).

DISCUSSION

This is the first research study to examine the functional impairments of South African children with OCD. Previous research in this field was conducted with Scandinavian and North American children. In addition, the findings of previous studies are not conclusive with regards to what characterizes childhood OCD-related functional impairment. Therefore, this study aimed to describe the functional impairments of South African children with OCD and to compare these findings to those of previous studies.

Parents and children showed agreement in their ratings on very few of the items common to both the COIS-R-P and COIS-R-C, which is consistent with the findings of previous studies. However, contrary to previous findings, in this study parents and children did not significantly disagree on any of these items: The Mann-Whitney U-statistics indicated that, even in the presence of multiple pairwise comparisons, there were no significant differences between the parent and child ratings on any of the items common to both measures.

Children, however, consistently reported higher rates of significant problems than did their parents on almost all of the items common to both measures. In contrast, previous researchers found the opposite pattern: parents reported higher rates of significant problems than did children (Piacentini et al., 2003; Valderhaug & Ivarsson, 2005). It is not clear why this inconsistency exists. One may speculate that children in the South African sample can distinguish more easily than their parents about whether a functional impairment is OCD-related or not. On the other hand, as noted above, this study is the first to make use of the COIS-R-P and COIS-R-C, which consist of different item sets and have different factor structures, and therefore may allow for differential influences on ratings of individual items.

The finding that children consistently reported higher rates of OCD-related functional problems than did their parents is consistent with data derived from correlations between the various instruments used in this study. Specifically, for parents and children, measures of global impairment showed a negative correlation with measures of OCD-related functional impairment, implying that the COIS-R is a useful measure of impairment. However, parents appeared to find it more difficult than did their children to separate OCD-specific functional impairments from non-OCD impairments (i.e., the correlation between a global measure of impairment, the CGAS, and the COIS-R-P was higher than the correlation between the CGAS and the COIS-R-C). This finding is consistent with data presented by Piacentini et al. (2003) and Valderhaug and Ivarsson (2005).

On the other hand, correlations between an instrument rating the severity of childhood OCD, the CY-BOCS, and the COIS-R-C were higher than the correlations between the CY-BOCS and the COIS-R-P. Thus, information obtained from the parent about the child’s functioning may be more useful in rating global impairment; information obtained from the child about his/her own functioning may be more useful rating the severity of OCD-specific distress and functional impairment.

Many of the children in this study had one or more co-morbid disorders. However, as described above, Piacentini et al. (in press) found that the COIS-R provides an explanation for OCD-related functional impairment over and above the role that co-morbid symptoms play in a child's general functional impairment. Thus, the occurrence of co-morbid disorders did not affect the findings of the present study.

More importantly from the perspective of treatment planning, in terms of domains of OCD-related functional impairment, South African children reported that they experienced the most impairment in the school and social domains. Parents, on the other hand, reported that their children experienced the most impairment in the school domain. These findings are not consistent with previous research; nor are the specific problem areas identified by South African parents and children (see Table 1).

The differences between the findings of this study and previous studies may be attributed to three factors. First, Piacentini et al. (2003) and Valderhaug and Ivarsson (2005) used the COIS, whereas I used the revised version of the instrument, which, as noted above, is different in form and content from the original version. Second, the present study used different recruitment methods to previous studies (viz., large clinics were used as the only method of recruitment in previous studies), and so my sample may be fundamentally different from those of previous researchers. It is unlikely that these factors alone can account for the different findings across studies, however. For instance, Piacentini et al. (in press) make it clear that although the COIS-R is a psychometric improvement over the COIS, it retains many of the original items and confirmed the a priori, non-empirically derived factor structure of the original measure. Additionally, Piacentini (personal communication, 12 October 2007) confirmed that the clinical characteristics of his sample are similar to the sample used in this study (e.g., none of the participants were inpatients, and the most severe OCD cases were probably not a part of the studies).

The third factor, then, that may explain between-study differences in findings is culture. Whereas Piacentini et al. (2003) drew their sample from a cohort of children attending a clinic in Los Angeles, and Valderhaug and Ivarsson (2005) used a cohort from Norwegian and Swedish clinics, I used a sample of children from the Western Cape. Research studies have already confirmed that the manifestations of OCD symptoms differ across cultures (e.g., Lemelson, 2003) and that, with regard to general mental health, "one observes different degrees of functional impairment in different cultures even when rates of psychiatric disorder are similar" (Canino, Costello, & Angold, 1999, p. 96).

Furthermore, psychiatric research conducted in South Africa has shown that coloured and black children have more anxiety-related symptoms than do white children (Muris et al., 2006). Therefore, it is clear that symptomatology, symptom manifestations, and, consequently, functional impairment, can and do vary across cultures. So, with specific regard to OCD-related functional impairment, one child may differ from another as a consequence of culture.

Obviously, however, the findings of the current study cannot yet confirm whether or not culture plays a role in OCD-related functional impairment. In large part this is due to the small size of the sample reported on here. The structures set in place by this study do, however, allow for full exploration of the role of culture in OCD-related functional impairment. Firstly, given the multi-cultural nature of South African society, this is an ideal location to conduct a study specifically examining the role of culture in psychiatric disorders and consequent psychosocial dysfunction. Secondly, I have successfully created and used a demographic questionnaire (Appendix D) to capture data related to the many different areas of a person's life, such race, socio-economic status, religion, and education, through which culture might be expressed (Allen, 2007). The individual and collective influence of these cultural aspects on a child's OCD-related functional impairment need to be examined in order to draw firm conclusions regarding the role culture plays in shaping those impairments. Thirdly, given that the researchers will not be operating under such strict time constraints in future, the study will eventually involve quite a large sample and will thus be able to examine the effects of different cultural aspects on childhood OCD-related functional impairment.

With regard to expanding and building upon the current study, the general structures set in place will not need to be altered as further data collection proceeds. This solid foundation has been ensured on multiple fronts. Firstly, the primary researcher has already made numerous recruiting contacts in the Western Cape, and plans are already underway for setting into place recruitment structures in Gauteng and in Kwazulu-Natal. Further with regard to recruitment, the current study experienced some participant attrition due to children experiencing excessive anxiety about the study procedures. To minimize such attrition in future, feedback from previous participants will be placed on a childhood OCD website currently being designed. Therefore, the sample will in future be larger and more representative of South African children who suffer from OCD.

Secondly, in terms of methods, we experienced no major problems with the current procedures and measures. If we are able to recruit sufficient numbers of children into future samples, however, we will be able to examine the psychometric properties (e.g., cross-cultural and predictive validity, test-retest reliability with regard to effects of treatment) of the COIS-R. The instrument’s developers (Piacentini et al., in press) have expressed interest in guiding this process. With regard to another of the instruments used in this study, the CGAS, with a large enough sample we may be able to examine whether the recommended cut-off point for global functional impairment is as valid in South Africa as in the country for which it was developed (the United States; Canino et al., 1999). Mental health professionals are already aware that standards for functional impairment vary across cultures and that “…[w]hat may be perceived as a mild functional limitation in one culture may be more troubling in another and vice versa” (Winters, Collett, & Myers, 2005, p. 311).

Thirdly, with regard to data analysis, with a larger sample size we may be able to examine more closely and accurately parent-child disagreement using statistical techniques such as the McNemar Test; as noted above, in the current study, with its small sample size, the assumptions of this test were violated. With a larger sample size we will also be able to (a) use regression-based analyses to examine, for instance, the contributory role of culture on OCD-related functional impairment, and (b) examine age- and sex-related individual differences in OCD-related functional impairment.

The continuation of this study and its consequent findings will help inform the diagnosis and treatment of children with OCD. This research is particularly important if, like the South African adults studied by Lochner et al. (2003), South African children show a pattern of more severe OCD symptoms associated with increasing functional impairment. For instance, a recent review showed that individual- and family-based CBT (exposure and response prevention) seem to be the most effective ways of treating childhood OCD (Freeman et al., 2007). Riggs and Foa (1993) earlier argued that information regarding OCD-related impairment should be used to help create the exposure exercises used within cognitive-behavioural therapy to treat patients with OCD. Additionally, if, for example, South African children with OCD predominantly suffer from impairment in the school domain, this information may be very useful with regards to designing interventions that can assist educational or school psychologists, as well as teachers, in identifying and helping children suffering from OCD. Given that "[r]ecent evidence indicates that many school psychologists lack evidenced-based knowledge about assessment and treatment of pediatric Obsessive-Compulsive Disorder (OCD)" (Sloman, Gallant, & Storch, 2007), the continuation of this study is particularly important.

In conclusion, this study has provided preliminary steps towards reaching the goal of a comprehensive understanding of childhood OCD-related functional impairment in South Africa. Such an understanding will help clinicians, parents and teachers to intervene early on in a child's life, which will help prevent the development of long-lasting problematic behaviours. "Such intervention increases the probability of keeping OCD-affected youngsters on track with developmental milestones and thus might offer economic benefits of increased productivity, along with enhanced life quality, into adolescence and adulthood" (Freeman et al., 2007, p. 341).

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Appendix A

DSM-IV-TR Criteria for OCD

A. Either obsessions or compulsions:

Obsessions as defined by (1), (2), (3), and (4):

(1) recurrent and persistent thoughts, impulses or images that are experienced, at some time during the disturbance, as intrusive and inappropriate and that cause marked anxiety or distress

(2) the thought, impulses, or images are not simply excessive worries about real-life problems

(3) the person attempts to ignore or suppress such thoughts, impulses or images, or to neutralize them with some other thought or action

(4) the person recognizes that the obsessional thoughts, impulses, or images are a product of his or her own mind (not imposed from without as in thought insertion)

Compulsions as defined by (1) and (2):

(1) repetitive behaviors (e.g., hand washing, ordering, checking) or mental acts (e.g., praying, counting, repeating words silently) that the person feels driven to perform in response to an obsession, or according to rules that must be applied rigidly;

(2) the behaviors or mental acts are aimed at preventing or reducing distress or preventing some dreaded event or situation; however, these behaviors or mental acts either are not connected in a realistic way with what they are designed to neutralize or prevent or are clearly excessive

B. At some point during the course of the disorder, the person has recognized that the obsessions or compulsions are excessive or unreasonable. **Note:** This does not apply to children.

C. The obsessions or compulsions cause marked distress, are time consuming (take more than one hour a day), or significantly interfere with the person’s normal routine, occupational (or academic) functioning, or usual social activities or relationships.

D. If another Axis 1 disorder is present, the content of obsessions or compulsions is not restricted to it (e.g., preoccupation with food in the presence of Trichotillomania; concern with appearance in the presence of Body Dysmorphic Disorder; preoccupation with drugs in the presence of a Substance Use Disorder; preoccupation with having a serious illness in the presence of Hypochondriasis; preoccupation with sexual urges or fantasies in the presence of a Paraphilia; or guilty ruminations in the presence of a Major Depressive Disorder).

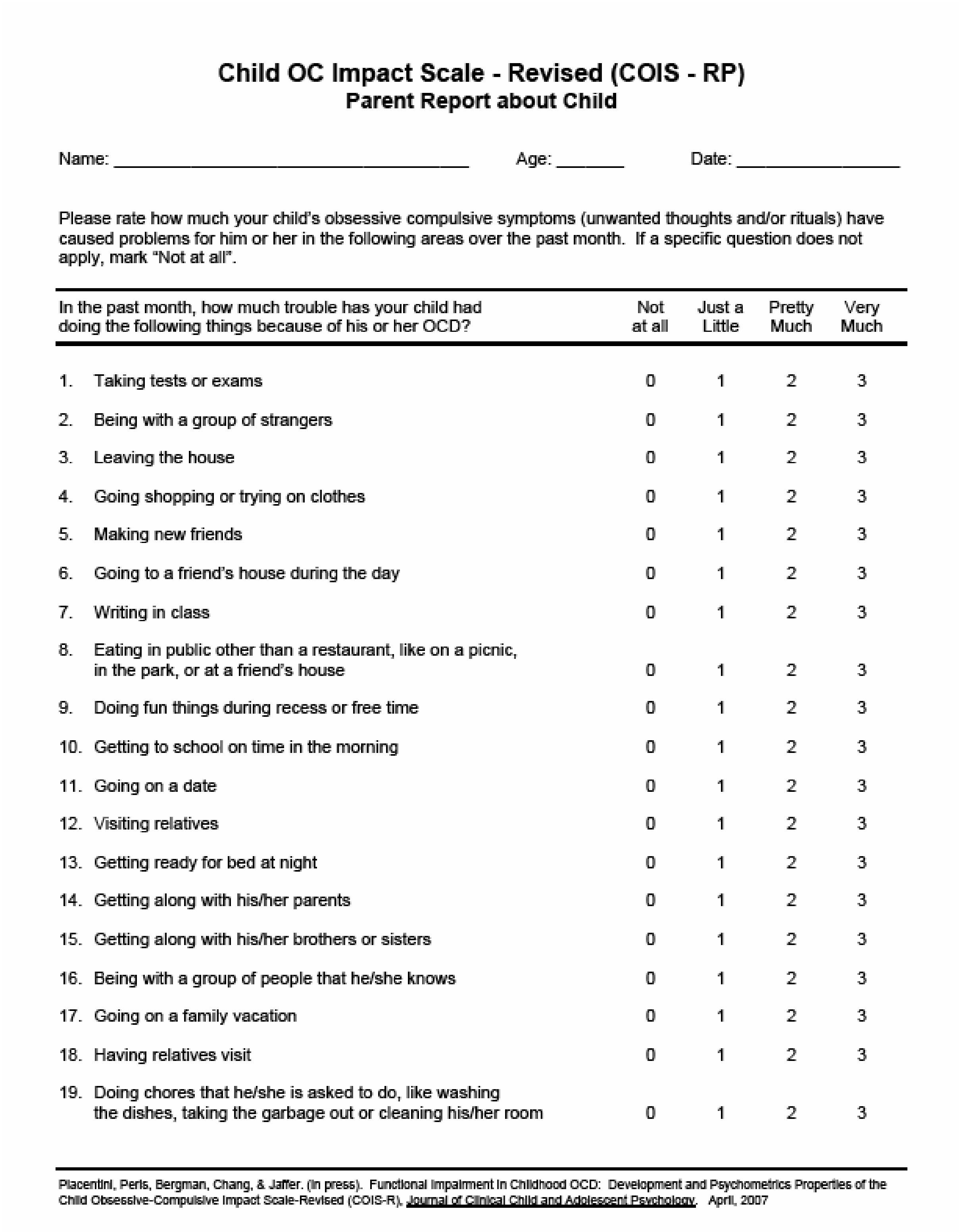
E. The disturbance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition.

Specify if:

With Poor Insight: if, for most of the time during the current episode, the person does not recognize that the obsessions and compulsions are excessive or unreasonable.

Appendix B

COIS-R Parent Report Form



Child OC Impact Scale - Revised (COIS - RP)

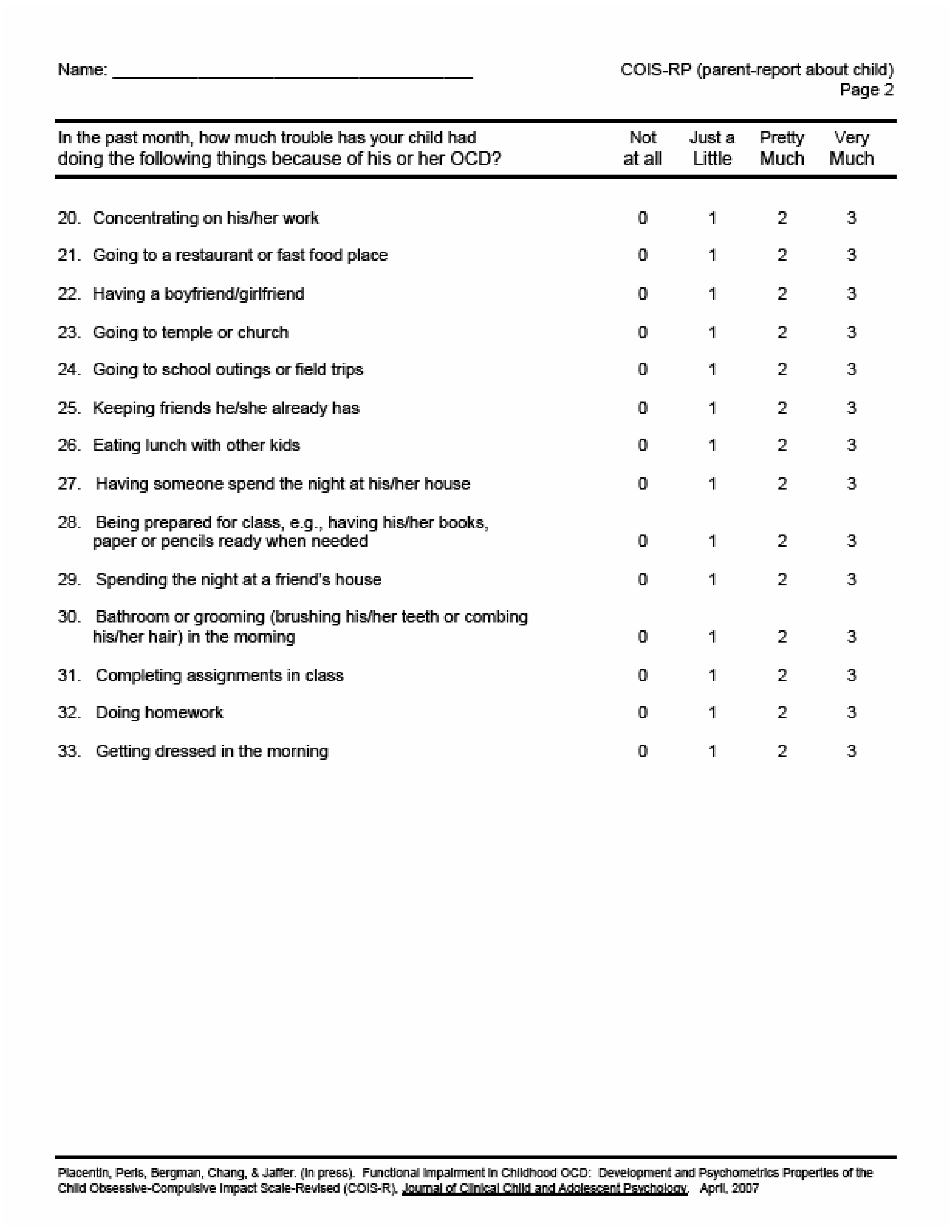
Parent Report about Child

Name: ______________________________ Age: _______ Date: _______________

Please rate how much your child's obsessive compulsive symptoms (unwanted thoughts and/or rituals) have caused problems for him or her in the following areas over the past month. If a specific question does not apply, mark "Not at all".

In the past month, how much trouble has your child had doing the following things because of his or her OCD?	Not at all	Just a Little	Pretty Much	Very Much
1. Taking tests or exams	0	1	2	3
2. Being with a group of strangers	0	1	2	3
3. Leaving the house	0	1	2	3
4. Going shopping or trying on clothes	0	1	2	3
5. Making new friends	0	1	2	3
6. Going to a friend's house during the day	0	1	2	3
7. Writing in class	0	1	2	3
8. Eating in public other than a restaurant, like on a picnic, in the park, or at a friend's house	0	1	2	3
9. Doing fun things during recess or free time	0	1	2	3
10. Getting to school on time in the morning	0	1	2	3
11. Going on a date	0	1	2	3
12. Visiting relatives	0	1	2	3
13. Getting ready for bed at night	0	1	2	3
14. Getting along with his/her parents	0	1	2	3
15. Getting along with his/her brothers or sisters	0	1	2	3
16. Being with a group of people that he/she knows	0	1	2	3
17. Going on a family vacation	0	1	2	3
18. Having relatives visit	0	1	2	3
19. Doing chores that he/she is asked to do, like washing the dishes, taking the garbage out or cleaning his/her room	0	1	2	3

Piacentini, Peris, Bergman, Chang, & Jaffer. (in press). Functional Impairment in Childhood OCD: Development and Psychometrics Properties of the Child Obsessive-Compulsive Impact Scale-Revised (COIS-R). Journal of Clinical Child and Adolescent Psychology. April, 2007



Name: ______________________________________

COIS-RP (parent-report about child)
Page 2

In the past month, how much trouble has your child had doing the following things because of his or her OCD?	Not at all	Just a Little	Pretty Much	Very Much
20. Concentrating on his/her work	0	1	2	3
21. Going to a restaurant or fast food place	0	1	2	3
22. Having a boyfriend/girlfriend	0	1	2	3
23. Going to temple or church	0	1	2	3
24. Going to school outings or field trips	0	1	2	3
25. Keeping friends he/she already has	0	1	2	3
26. Eating lunch with other kids	0	1	2	3
27. Having someone spend the night at his/her house	0	1	2	3
28. Being prepared for class, e.g., having his/her books, paper or pencils ready when needed	0	1	2	3
29. Spending the night at a friend's house	0	1	2	3
30. Bathroom or grooming (brushing his/her teeth or combing his/her hair) in the morning	0	1	2	3
31. Completing assignments in class	0	1	2	3
32. Doing homework	0	1	2	3
33. Getting dressed in the morning	0	1	2	3

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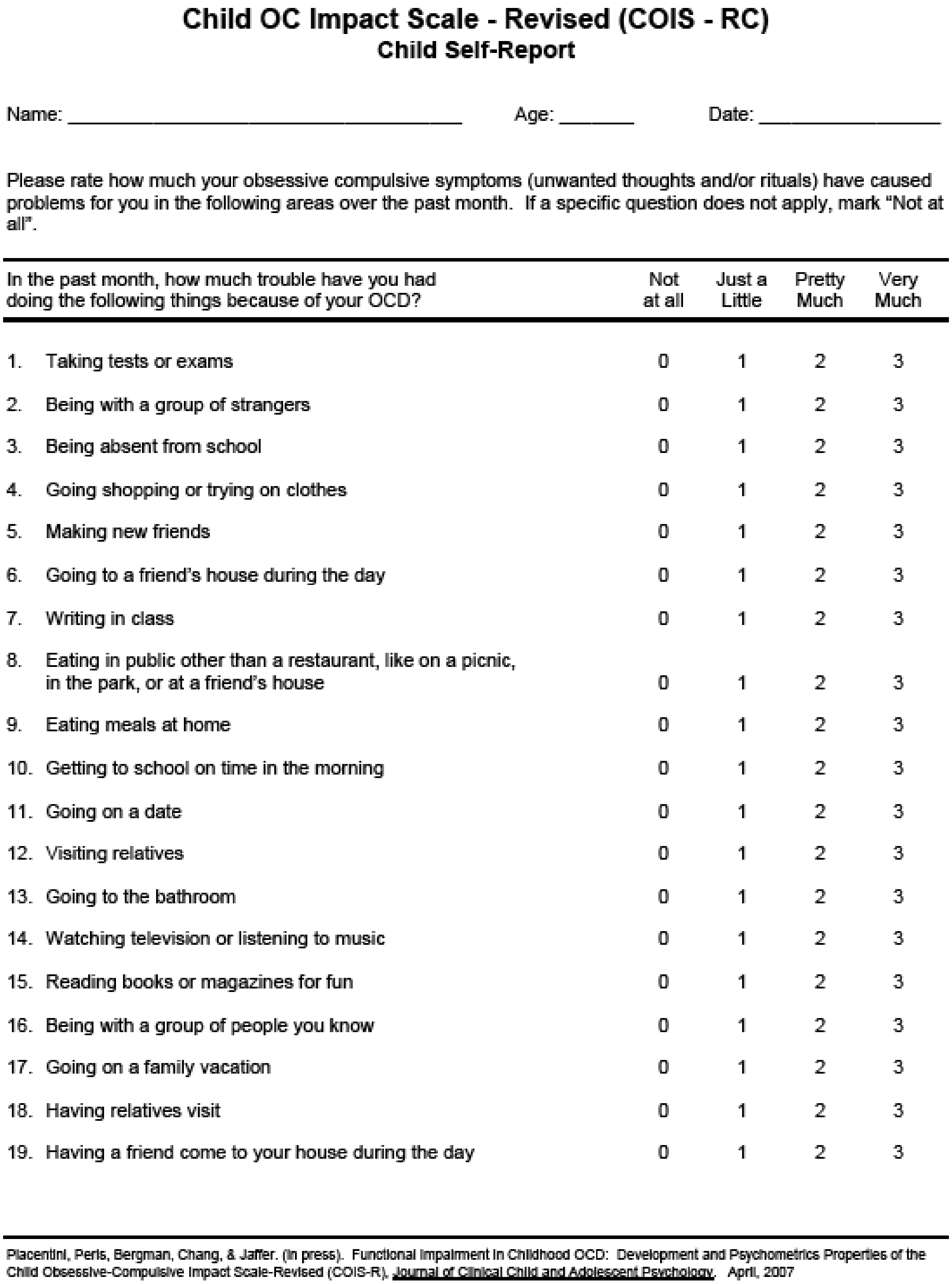
Appendix C

COIS-R Child Self-Report Form



Child OC Impact Scale - Revised (COIS - RC)
Child Self-Report

Name: ____________________________________ Age: _______ Date: _________________

Please rate how much your obsessive compulsive symptoms (unwanted thoughts and/or rituals) have caused problems for you in the following areas over the past month. If a specific question does not apply, mark "Not at all".

In the past month, how much trouble have you had doing the following things because of your OCD?	Not at all	Just a Little	Pretty Much	Very Much
1. Taking tests or exams	0	1	2	3
2. Being with a group of strangers	0	1	2	3
3. Being absent from school	0	1	2	3
4. Going shopping or trying on clothes	0	1	2	3
5. Making new friends	0	1	2	3
6. Going to a friend's house during the day	0	1	2	3
7. Writing in class	0	1	2	3
8. Eating in public other than a restaurant, like on a picnic, in the park, or at a friend's house	0	1	2	3
9. Eating meals at home	0	1	2	3
10. Getting to school on time in the morning	0	1	2	3
11. Going on a date	0	1	2	3
12. Visiting relatives	0	1	2	3
13. Going to the bathroom	0	1	2	3
14. Watching television or listening to music	0	1	2	3
15. Reading books or magazines for fun	0	1	2	3
16. Being with a group of people you know	0	1	2	3
17. Going on a family vacation	0	1	2	3
18. Having relatives visit	0	1	2	3
19. Having a friend come to your house during the day	0	1	2	3

Piacentini, Peris, Bergman, Chang, & Jaffer. (in press). Functional Impairment in Childhood OCD: Development and Psychometrics Properties of the Child Obsessive-Compulsive Impact Scale-Revised (COIS-R). Journal of Clinical Child and Adolescent Psychology. April, 2007

Name: ______________________________

COIS-RC (child self-report)
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In the past month, how much trouble have you had doing the following things because of your OCD?	Not at all	Just a Little	Pretty Much	Very Much
20. Concentrating on your work	0	1	2	3
21. Going to a restaurant or fast food place	0	1	2	3
22. Having a boyfriend/girlfriend	0	1	2	3
23. Going to the movies	0	1	2	3
24. Getting to classes on time during the day	0	1	2	3
25. Keeping friends you already have	0	1	2	3
26. Eating lunch with other kids	0	1	2	3
27. Having someone spend the night at your house	0	1	2	3
28. Being prepared for class, e.g., having your books, paper or pencils ready when needed	0	1	2	3
29. Talking on the phone	0	1	2	3
30. Bathroom or grooming (brushing your teeth or combing his/her hair) in the morning	0	1	2	3
31. Completing assignments in class	0	1	2	3
32. Doing homework	0	1	2	3
33. Getting good grades	0	1	2	3

Piacentini, Peris, Bergman, Chang, & Jaffer. (in press). Functional Impairment in Childhood OCD: Development and Psychometrics Properties of the Child Obsessive-Compulsive Impact Scale-Revised (COIS-R). Journal of Clinical Child and Adolescent Psychology. April, 2007

Appendix D

Demographic Questionnaire

1. **Age: __________**
2. **Sex (circle one):** Male Female
3. **What is your race or ethnic background?**
    - **WHITE**
    - **AFRICAN**
    - **COLOURED**
    - **ASIAN**
    - **OTHER: (specify) ___________**
4. **Religion**: ____
5. **Home Language**: ____
6. **Size of house (indicate the number of rooms in the house)**: _________________________________
7. **Number of people who live in the house**: ____
8. **8.1.What term best describes the kind of neighbourhood in which you live?**
    - **SUBURBAN**
    - **URBAN**
    - **TOWNSHIP**
    - **INTERMEDIATE**

   8.2.What is the name of the neighbourhood in which you live?

   ____

9. Household Income per annum (tick appropriate income category):

0-35000: ___________________
36000-75000:______________
76000-125000:_____________
126000-175000:____________
176000-225000:___________
226000-275000:___________
276000-325000:___________
326000-375000:___________
376000-425000:___________
426000-475000:___________
476000-525000:___________
526000<:___________

EDUCATION LEVEL OF CHILD

10. Education (highest grade completed): __________________________

11. Has most of your schooling been in a rural or urban setting (circle one)?

RURAL URBAN

12. Have you repeated any grades? YES NO

If yes, please specify which grade(s):

____

11. **What grade are you presently in (if not in school please indicate this):**

____

Footnotes

1. Developmentalists generally regard the word *childhood* as describing the period from birth until approximately 12 years old, and *adolescence* as spanning the period from 12 years old to about 20 years old (Shaffer, 2002). I will look at the functional impairments of OCD that occur during both these life spans.
2. Andreasen (2007, p. 108) writes with regard to phenomenology that:

   > In many writings in contemporary psychiatry, the term refers to the study of psychopathology, broadly defined, including signs, symptoms and their underlying thoughts and emotions. When used in this way, phenomenology provides the basis for nosology, or the development of disease definitions, diagnostic categories, or dimensional classifications.
3. Landis and Koch's (1977) outline for the interpretation of kappa values was used here.

Table 1

Comparison of Findings in Two Previous Studies

	Piacentini et al. (2003)	Valderhaug & Ivarsson (2005)
Most Significant:		
Domain(s) of impairment	Home/family; School/academic	Home
Individual problem	Difficulty concentrating on schoolwork	Situations related to bedtime; Activities requiring concentration; Building or maintaining social relations
Child-Parent Rating Differences	Parents rated problems as more significant	Parents rated problems as more significant
Impairment Prevalence Rates:		
Impact of age	None	Adolescents reported more impairments than children
Impact of gender	None	Girls reported more impairments than boys
Impact of co-morbid disorders	Not reported	Co-morbidity associated with higher reported rates of impairment

Table 2

Demographic Characteristics of the Current Sample

Variable	
Age (years):	
Range	6-17
Mean (SD)	13 (3.33)
Gender:	
Males:Females	3:5
Education:	
Mean Years (SD)	6 (3.38)
Urban:Rural	8:0
Repeated a grade:Never repeated a grade	4:4
Race:	
White:Coloured:Other	6:1:1
Home Language:	
English:Afrikaans	6:2
Religion:	
Christian:Muslim:Other	3:1:4
SES[a]:	
High:Medium:Low	4:3:1

[a] Socio-economic status was calculated by taking into account income per annum, kind of neighborhood lived in, number of people who live in the house, and number of rooms in the house.

Table 3

Parent and Child Impairment Ratings on COIS-R Items, in Addition to Levels of Parent-Child Agreement and Disagreement

COIS-R Item	No Problem		Significant Problem		Parent-Child Agreement (Kappa)	Parent-Child Disagreement (McNemar Test, parent > child)	Parent-Child Difference (Mann-Whitney U-Test, U value)	Parent-Child Difference (Mann-Whitney U-Test, p value)
	Parent (%)	Child (%)	Parent (%)	Child (%)				
Taking tests or exams	25	25	75	75	1.00	0.00	0.00	0.333
Being with a group of strangers	62.5	25	37.5	75	-0.11	1.80	0.00	1.000
Going shopping or trying on clothes	25	12.5	75	87.5	0.06	0.33	0.00	1.000
Making new friends	37.5	100	62.5	0	0.00	3.00	0.00	1.000
Going to a friends house during the day	25	12.5	75	87.5	0.60	1.00	0.00	1.000
Writing in class	37.5	25	62.5	75	0.14	0.33	1.50	0.667
Eating in a public place other than a restaurant …	50	25	50	75	0.00	1.00	3.50	0.571
Getting to school on time in the morning	25	37.5	75	62.5	-0.82	0.20	1.00	0.400
Going on a date	62.5	50	37.5	50	-0.25	0.20	6.00	1.000
Visiting relatives	62.5	37.5	37.5	62.5	1.00	2.00	0.00	0.200
Being with a group of people that he/she knows	50	37.5	50	62.5	-0.25	0.20	4.00	0.629
Going on a family vacation	62.5	37.5	37.5	62.5	0.69	2.00	0.00	0.200
Having relatives visit	50	37.5	50	62.5	0.25	0.33	0.00	0.200
Concentrating on his/her work	12.5	25	87.5	75	0.60	1.00	1.50	0.267
Going to a restaurant/fastfood place	50	25	50	75	0.00	1.00	0.00	1.000

COIS-R Item	No Problem		Significant Problem		Parent-Child Agreement (Kappa)	Parent-Child Disagreement (McNemar Test, parent > child)	Parent-Child Difference (Mann-Whitney U-Test, U value)	Parent-Child Difference (Mann-Whitney U-Test, p value)
	Parent (%)	Child (%)	Parent (%)	Child (%)				
Having a boyfriend/girlfriend	62.5	37.5	37.5	62.5	0.06	1.00	2.00	0.800
Keeping friends she/he already has	50	25	50	75	0.50	2.00	0.00	0.333
Eating lunch with other kids	50	50	50	50	0.50	0.00	0.00	1.000
Having someone spend the night at his/her house	50	37.5	50	62.5	-0.75	0.14	2.00	0.229
Being prepared for class …	25	50	75	50	-0.43	0.20	2.00	0.553
Bathroom or grooming …	25	25	75	75	0.33	0.00	2.50	0.800
Completing assignments in class	25	25	75	75	-0.33	0.00	2.00	1.000
Doing homework	100	12.5	0	87.5	0.00	1.00	1.00	0.667

Note. The items listed here are those that appear in both the parent and child versions of the COIS-R.

Table 4

Parent COIS-R Ratings of Child/Adolescent's Impairment

COIS-R Item	No Problem (%)	Significant Problem (%)
Leaving the house	37.5	62.5
Doing fun things during recess or free time	50	50
Getting ready for bed at night	12.5	87.5
Getting along with his/her parents	25	75
Getting along with his/her brothers/sisters	12.5	87.5
Doing chores that he/she is asked to do …	37.5	62.5
Going to temple or church	62.5	37.5
Going to school outings or field trips	50	50
Spending the night at a friends' house	62.5	37.5
Getting dressed in the morning	25	75

Note. The items listed here are those that appear in the parent, but not the child, version of the COIS-R.

Table 5

Child/Adolescent's COIS-R Self-Rating of Impairment

COIS-R Problem	No Problem (%)	Significant Problem (%)
Being absent from school	75	25
Eating meals at home	50	50
Going to the bathroom	25	75
Watching television or listening to music	25	75
Reading books or magazines for fun	25	75
Having a friend come to your house during the day	37.5	62.5
Going to the movies	25	75
Getting to classes on time during the day	37.5	62.5
Talking on the phone	50	50
Getting good grades	50	50

Note. The items listed here are those that appear in the child, but not the parent, version of the COIS-R.

Table 6

Number of Items Endorsed as Significant Problems on the Different Factors of the COIS-R

Instrument and Domain of Impairment	Number of Items in Domain	Mean Rating (SD)
COIS-R, Parent Report		
School	6	4.75 (1.28)
Family/Activities	9	5.00 (2.93)
Social	13	6.50 (4.99)
Daily Living Skills	5	3.75 (1.28)
Total	33	20.00 (8.40)
COIS-R, Child Report		
School	10	6.38 (3.29)
Activities	17	11.75 (5.90)
Social	6	4.13 (2.03)
Total	33	22.25 (9.97)

Table 7

Spearman Correlations (rho) Between Parent and Child Reports on the COIS-R and Clinician Assessment on the CY-BOCS and CGAS

	COIS-R, Parent Report Domain					COIS-R, Child Report Domain			
Instrument	School	Family/Activities	Social	Daily Living Skills	Total	Activities	School	Social	Total
CY-BOCS:									
Obsessions	0.08	-0.03	-0.33	-0.34	-0.32	0.75*	0.66	0.40	0.71*
Compulsions	-0.33	0.17	-0.13	0.26	0.02	0.01	-0.21	0.54	-0.03
Total	0.00	0.02	-0.34	-0.20	-0.27	0.73*	0.61	0.61	0.70
CGAS	-0.13	-0.66	-0.47	-0.11	-0.56	0.17	0.13	-0.39	0.11

*$p < 0.05$

Figure 1. Co-morbidity in the current sample of OCD children and adolescents

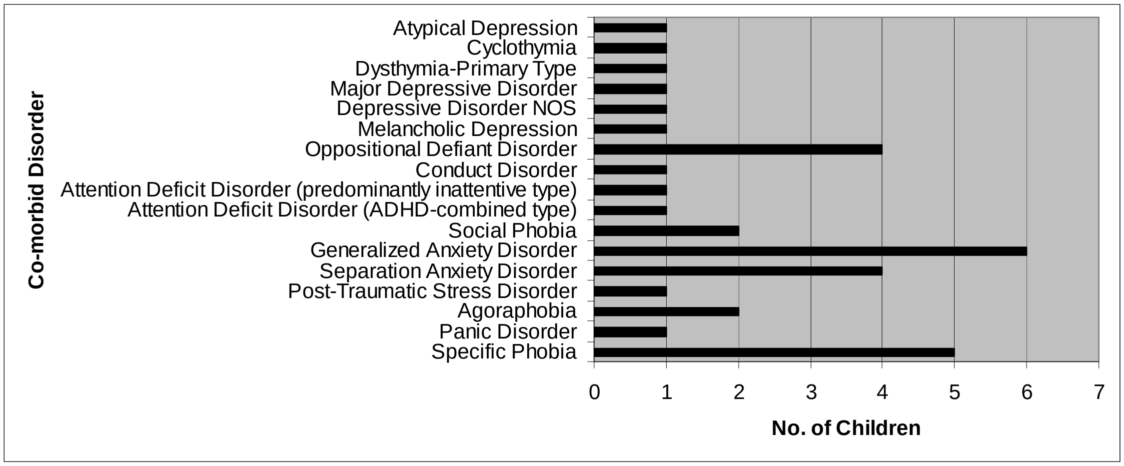

Figure 2. Number of Children with at Least One Co-morbid Disorder in the Behavioural, Affective and Anxiety Disorder Categories

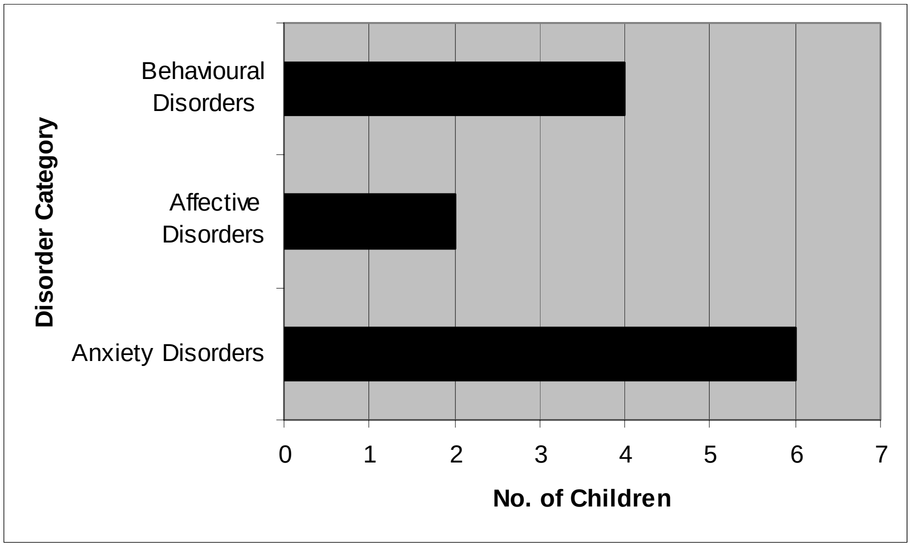

Figure 3. COIS-R Domains of Impairment: Parent Ratings

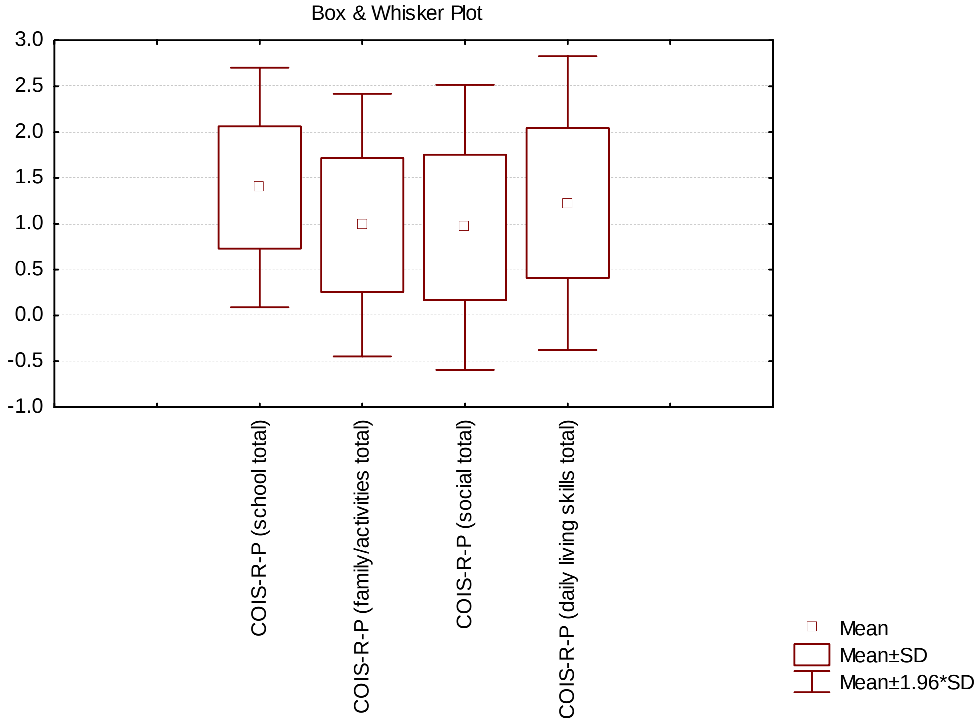

Figure 4. COIS-R Domains of Impairment: Child/Adolescent Ratings