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A Child Distracted: Understanding the Relationship Between Pediatric Obsessive-Compulsive Disorder and Subjective Well-Being

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A Child Distracted: Understanding the Relationship Between Pediatric Obsessive-Compulsive Disorder and Subjective Well-Being

by

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of the requirements for the degree of
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Dedication

This dissertation is dedicated to my family. To my parents: There’s a very old joke about why people become psychologists. I would not say my life was anything other than interesting; however, you should take some pride in (some might say responsibility for) my “research interests.” Thank you for always encouraging me to follow my own path, no matter how long and twisting, and to disregard the naysayers.

To my wife, Catherine: Thanks again, love of my life. I truly could not have done this without you, and I can only hope that the rewards will be worth all of the frustration. You have been incredibly patient and supportive, which is absolutely stunning when I consider the strain all of this has put on our little family. I love you more than I could ever say.

To my son, Lucas: It has been such a joy to watch you grow into an incredible young man. For all of the meetings you’ve attended, all the times you’ve had to hang out with Grandma and Grandpa so that I could spend a 12-hour day in the classroom, all the days you’ve had to come to work with me…I am so proud of you, and so lucky to be your dad. You’re an amazing kid, and I am in awe of (and, let’s be honest, a little terrified by) how smart you are. You once asked me what this “dissytation” was all about, and now I can show you. The best thing about being done with writing this is that I can spend more time with you while you continue to grow into an amazing adult. You’re too big to carry now (although your mom and I refuse to admit this to you), but I hope you’ll continue to hold my hand when we walk for just a little while longer. I love you buddy.

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Abstract

Obsessive Compulsive Disorder (OCD) is a commonly diagnosed mental health condition among children and adolescents, with studies suggesting that OCD has the potential for significant disruption of academic and social performance. Subjective well-being (SWB) represents a non-traditional conceptualization of mental health within the dual factor model, wherein SWB and measures of psychopathology (e.g., problematic levels of internalizing and externalizing behaviors) provide a more comprehensive picture of mental wellness. The current study examined the nature of the relationship between clinical characteristics of pediatric OCD and SWB within school-age youth (N=65) seeking treatment from an outpatient pediatric neuropsychiatric clinic. Additionally, the potential for moderation of this relationship by various symptom-related and demographic variables was examined, as was the potential for SWB to moderate the relationship between clinical characteristics of pediatric OCD and associated impairments in academic and general functioning. Results indicated that a majority of the sample (*n*=58; 89.2%) met or exceeded the clinically significant threshold for OCD symptoms, while roughly half of the sample (*n*=33; 50.8%) endorsed significant levels of academic impairment associated with symptom onset. Subjective well being varied among participants, with levels of SWB showing a statistically significant negative relationship with obsessive thoughts, but little to no relationship with compulsive behaviors. Finally, results of multiple regression analyses failed to identify variables that effectively moderated the relationship between clinical characteristics of pediatric OCD and SWB.

Similarly, SWB was not indicated as a moderator of the relationship between clinical characteristics of pediatric OCD and academic functioning. Implications of the findings and directions for future research are discussed.

Chapter 1:

Introduction

Statement of the Problem

Obsessive-compulsive disorder (OCD) is the fourth-most commonly diagnosed mental disorder, affecting approximately 1% of the overall United States population (Kessler et al., 2005). Although the onset of symptoms in OCD most often occurs in adolescence (Wewetzer et al., 2001), the condition's course is chronic and unremitting without treatment, which can cause significant impairment and distress in a person's social, academic, and professional life (Eisen et al., 2006; Piacentini, Bergman, Keller, & McCracken, 2003; Rapaport, Clary, Fayyad, & Endicott, 2005; Rasmussen & Tsuang, 1986).

Much of the established literature has examined the impact of OCD upon adult populations; however, there is a growing body of research revealing similar effects within the domains of academic and family functioning for pediatric OCD (e.g., Geller et al., 2000; Markarian et al., 2010; Peris et al., 2008; Piacentini, Peris, Bergman, Chang, & Jaffer, 2007). At least two recent studies have focused upon the academic impact of OCD in school-age youth (e.g., Lack et al., 2009; Piacentini, Bergman, Keller, & McCracken, 2003; Piacentini et al., 2007), although the focus of these studies has been to examine this impact solely from the standpoint of a traditional mental health model - exploring the relationship between psychopathology and academic performance.

Despite research supporting the importance of wellness measures within any conceptualization of mental health, there is a paucity of work examining the impact of OCD upon the subjective well-being of school-age children and adolescents. Put another way, there has been little to no examination as to how a commonly diagnosed chronic mental health conditions affects the perceived quality of life, as well as the attitudes toward school and academic performance and outcomes, of school-age children and adolescents.

Diagnostic Markers for OCD

In terms of diagnostic criteria for OCD, the *Diagnostic and Statistical Manual, Fourth Edition – Text Revision* (DSM-IV-TR; APA, 2000) requires the presence of at least one of two components - obsessions and/or compulsions. Furthermore, these symptoms must cause significant impairment or distress, be recognized as unreasonable by the individual, and not be the direct result of a general medical condition or substance use. While these requirements appear simple and straightforward, it becomes instructive - in terms of general knowledge, as well as for understanding the potential impact of this disorder - to more clearly define the diagnostic markers for OCD.

Obsessions are defined as thoughts or impulses that provoke anxiety or distress, are recurring and persistent, and resist efforts at suppression or ignoring (APA, 2000). Additionally, obsessions are qualitatively different from over-worry in response to common problems; instead, these thoughts or impulses are associated with daily routines or situations that *are not normally seen as a problem at all*. The defining characteristic of an obsession is that the subject in question has attempted to ignore, neutralize, or compensate for these thoughts with opposing (or orthogonal) thoughts or behaviors. It is these attempts at resistance which are termed compulsions.

The presence of a compulsion is determined by an urge or feeling of need to engage in repetitive behaviors, in response to a provocative thought or image, with the ultimate aim of reducing the level of arousal or preventing a “dreaded event” (APA, 2000). In addition to its relationship with a particular obsession, compulsions often occur within the context of strict rules that may be comprehensible only to the subject. Therefore, the hallmark of a compulsion lies in the behavior appearing excessive or unrealistic in its association with the subject’s feared result.

In addition to being deemed excessive by *others*, the notion of insight requires that these obsessions or compulsions must be recognized as unreasonable and/or absurd *by the individual*. Interestingly, the presence or absence of insight marks the only diagnostic consideration that takes into account the developmental differences between children and adults; as such, the presence of insight is not required for a diagnosis of OCD in children or adolescents (APA, 2000). Finally, as with other disorders within the DSM, the symptoms described must not be a direct result of a medical condition, or substance use or abuse.

Phenomenology and Epidemiological Considerations

An examination of the extant OCD literature on children and adolescents reveals several common categories of symptoms experienced by individuals. For example, the most common genres of obsessions within children and adolescents include: fears of contamination (e.g., fears of being dirty, or of contracting/spreading a contagious disease); fear of harm to themselves or others (e.g., getting in an accident, victim of crime, unidentified or vague “bad thing” happening); fears of aggressive actions (e.g., assaulting a sibling, friend or parent); fears of sexual ideas or urges (masturbating in public, inappropriate sexual relationship and/or activity); scrupulosity or religiosity concerns (e.g., morally incongruent behaviors, “offending God”); fears of asymmetry (e.g., “crooked” items, uneven amounts); and fears related to basic insecurities (e.g., the need to ask, tell, or confess; Masi et al., 2005; Rettew, Swedo, Leonard, Lenane, & Rapoport, 1992; Storch et al., 2009).

In similar fashion, the most common types of compulsions include: washing rituals (e.g., inappropriately high-frequency handwashing behaviors); repeating behaviors (e.g., retracing steps, repeating speech fragments); checking routines (e.g., excessive door locking/unlocking, turning light switches on and off multiple times); touching behaviors (e.g., insistence upon touching any object with each hands, touching a particular body location when talking to others); counting rituals (e.g., counting letters in a word or words in a sentence, engaging in particular behaviors a predetermined number of times); ordering/arranging behaviors (e.g., “straightening” behaviors, returning moved furniture to its original arrangement); hoarding (e.g., extreme unwillingness to part with inconsequential objects and/or trash); and praying (e.g., must pray using predetermined phrases, predetermined number of times, in a predetermined position) (Carter & Pollock, 2000; Evans et al., 1997; King, Leonard, & March, 1998; Steketee & Van Noppen, 2003; Storch, 2006).

Of interest is the common finding that, while there are “classic” categories of symptoms, the symptoms experienced at any one point in time change frequently, usually without any clear pattern of progression; further, many children will experience almost all of the classic OCD symptoms prior to the end of adolescence (e.g., Geller et al., 2001). Of additional note is a finding that, generally speaking, compulsory rituals are found to be driven by at least one negative affect. Examples include fear, doubt, disgust, premonitory urge, and sensory incompleteness (Goodman, Rasmussen, Foa, & Price, 1994).

Concerns Specific to Pediatric Populations

To date, much of the research investigating OCD in pediatric populations has focused on comorbidity with other mental health conditions (e.g., Flament et al., 1988; Geller, Biederman, Griffin, Jones, & Lefkowitz, 1996; Geller et al., 2001; Storch, Merlo, Larson, Geffken et al., 2008), determining the impact of OCD upon developmental trajectory and social relationships (e.g., Evans et al., 1997; Steketee & Van Noppen, 2003; Storch, Merlo, Larson, Bloss et al., 2008), and illuminating possible causes of and risk factors for OCD (e.g., Carter & Pollock, 2000; King, Leonard, & March, 1998). It is instructive to briefly review the more recent research in these areas, as each contributes to the context within which children and adolescents spend their day-to-day lives.

Comorbidity. The most commonly cited mental health conditions associated with diagnoses of OCD are Tic Disorders and Tourette Syndrome. In fact, comorbidity rates as high as 80% have been reported in “early-onset” cases, where diagnoses were conferred before the age of 18 years (Leonard et al., 1992). Similarly, the presence of tics in childhood and early adolescence were found to predict an increase in obsessive-compulsive symptoms in late adolescence and adulthood (Peterson, Pine, Cohen, & Brook, 2001).

In addition to the various tic disorders, comorbidity rates from 50-60% have been reported for other anxiety disorders - most commonly Generalized Anxiety Disorder and Separation Anxiety Disorder (e.g., Geller et al., 2001; Zohar, 1999). Given the conceptual similarity of various anxiety disorders, there is some question as to whether these reported comorbidity rates indicate a common "risk factor" for OCD, or if instead some etiological third-party variable is responsible for both conditions (Geller et al., 2001).

In contrast, the rates of comorbidity for depression range from 10-26% (e.g., Geller, 2006; Hanna, 1995; Storch, 2008; Swedo et al., 1989). Here, a diagnosis of a Mood Disorder is considered to be a risk factor for OCD (e.g., Carter & Pollock, 2000); however, due to the natural consequences of its symptoms (e.g., social isolation, poor peer relationships), OCD is often referred to as depressogenic – that is, causing or tending to cause depression (Carter & Pollock, 2000; Geller, 2006; Swedo et al., 1989).

The last commonly reported disorder comorbid with OCD is Attention-Deficit/ Hyperactivity Disorder (ADHD), for which the rate of comorbidity has been reported at 30% (Geller et al., 1996). Of interest in this particular comorbid relationship is that the combination of these disorders can result in more severe impairment (e.g., increased difficulty in focusing attention, increased difficulty in resisting/fighting the impulse to engage in ritualistic behaviors) across multiple domains when compared to a diagnosis of OCD alone (e.g., Storch et al., 2008; Sukhodolsky et al., 2005).

Developmental and socio-relational considerations. When considering differences between adult and pediatric OCD, gender representation between the two populations is of note. To be more specific, pediatric OCD shows a ratio approaching four males for every female, a difference that decreases to near equality in adult populations (Flament et al., 1988). This distributional shift becomes of interest with respect to early identification within schools, as such knowledge can inform problem-solving hypotheses for behaviors exhibited by students. In addition to these findings, the aforementioned lack of insight into symptom functions and impairment are quite common in pediatric OCD populations, the result of which can be overly superstitious (or "magical") thinking.

Beyond gender differences, one of the more insidious findings from studies of pediatric OCD is the impact the disorder has on the developmental trajectory of children and adolescents. For example, The Pediatric OCD Treatment Study Team (POTS) found that without effective treatment of symptomatic concerns, OCD has a strong negative impact on the role functioning of children across multiple domains. More specifically, such a diagnosis is strongly related to lower frequency and perceived quality of peer relationships, as well as decreased levels of perceived support and effective communication from and between family members (POTS, 2004).

In addition to the large-scale POTS work, much of the research into relational characteristics for individuals with OCD has revealed similar findings. For example, various studies of adolescents seeking treatment for OCD and other anxiety disorders have reported rates as high as 75% of these individuals endorsing difficulties with peer networks (e.g., Allsopp & Verduyn, 1990; Langley, Bergman, McCracken, & Piacentini, 2004). In addition, most of the subjects interviewed noted that these difficulties predated their diagnosis. As a result, there is some question as to whether or not such endorsement is a result of a disorder-related social mechanism, or if instead such difficulties are somehow a risk factor for OCD in school-aged children and adolescents (Piacentini, Bergman, Keller, & McCracken, 2003; Piacentini et al., 2007; Storch et al., 2005).

Although OCD is characterized by obsessive thoughts and ritualistic behaviors, it is important to recognize that to some extent the presence of behavioral routines and a desire for “just-so-ness” is considered normal in typically developing young children (e.g., King et al., 1998). Indeed, Carter and Pollock (2000) suggest it is the concomitant distress associated with the rituals that is the only reliable method of differentiation between typical and OCD-related behaviors. In similar fashion, Salkovskis and colleagues (1999) stated that the observed distress is driven by a sense of “inflated responsibility” associated with OCD.

The term “thought-action fusion” (TAF) was introduced to describe the belief that experiencing a thought about a distressing event increases the likelihood of said event occurring. By extension, it is adherence to this belief that results in the notion that “wrong thoughts” are equivalent to engaging in wrong acts (Rachman, 1993). Further, the perception by children and adolescents of control over their intrusive thoughts - “cognitive control” (Barrett & Healy, 2003) - is the only factor found to reliably distinguish school-age children or adolescents with OCD from those who are typically developing, *as well as from those with other anxiety disorders*.

School and Pediatric OCD

A child or adolescent with OCD experiences thoughts throughout the day that are difficult to ignore, are anxiety-provoking, and seem impossible to stop or ignore. In an effort to reduce this anxiety, they perform ritualized behaviors that may be observable (e.g., repeated touching of an object or person, washing hands with excessive frequency) or covert (mental repetition of words, counting items according to specific mental rules). With this daily process in mind, it becomes easier to understand the potential impact of OCD on academic performance (Lack et al., 2009; Piacentini, Bergman, Keller, & McCracken, 2003; Piacentini et al., 2007) and social relationships (Hollander et al., 1996; Storch, Merlo, Larson, Bloss et al., 2008; Valderhaug & Ivarsson, 2005).

Academic performance. At the most basic level of academic performance, having OCD takes a tremendous toll on a student's attentional resources; specifically, the time spent engaging in obsessions and ritualized behaviors is time that is unavailable for receiving classroom instruction. In addition to difficulties with receiving and processing information, these obsessions and compulsions can rapidly multiply the resources (in time and energy) necessary to complete schoolwork (Ledley & Pasupuleti, 2007; Piacentini, Bergman, Keller, & McCracken, 2003; Piacentini et al., 2007).

As an example, an obsession with needing work to be correct ("perfect") can result in greatly slowed and laborious work output, and frequent and excessive questioning of the teacher and peers for reassurance. Similarly, the common need to have letters and numbers appear "just so" leads to frequent erasures, recopying, and retracing letters (Piacentini et al., 2003; Piacentini et al., 2007). Indeed, the sheer amount of effort and subsequent frustration results in late or incomplete submission of work; at the most extreme level of impairment, children are unable to attend school at all (Ledley & Pasupuleti, 2007).

Social relationships. In addition to academic performance, OCD has the potential for significant impairment of students' social functioning within their school. Perhaps the most investigated area in recent research has been the social stigma experienced by school-aged children and adolescents due to “weird-looking” rituals, and the resultant increased frequency of peer victimization when compared to students without OCD (e.g., Storch et al., 2005; Storch et al., 2006). More directly, the presence of some obsessions can make social interactions significantly more difficult. For example, contamination concerns can make participation in sporting activities extremely distressing, as the student will not want to touch their peers (or shared equipment).

Interestingly, the struggle to resist problematic compulsions can result in at least two additional barriers to social interaction. First, the need to complete homework (which is significantly more time-consuming compared to their peers) or compensate for rituals missed or resisted during the school day (e.g., washing hands, excessive prayer, mentally replaying conversations) results in a feeling that there is insufficient time for playing with peers (Piacentini, Bergman, Keller, & McCracken, 2003; Piacentini et al., 2007). Second, even when the ritualized behaviors are successfully resisted by the student, the immense amount of effort expended in this daily fight can result in complete exhaustion, such that peer play activity is less attractive than relaxation and/or sleep (Ledley & Pasupuleti, 2007).

Assessment of Impact

Examination of the extant research into pediatric OCD yields much work on the observed ranges of symptom intensity and topology (e.g., Geller et al., 2001; Geller, 2006; Rettew, Swedo, Leonard, Lenane, & Rapoport, 1992; Swedo et al., 1989), on potential problems commonly observed for students with respect to academic performance and social relationships (e.g., Adams, Waas, March, & Smith, 1994; Piacentini et al., 2003; Piacentini et al., 2007), and on effective methods of treatment (e.g., March & Mulle, 1995; Storch, 2005). Although such work is interesting from the standpoint of putting a "face" to pediatric OCD, and is arguably of use in suggesting methods for addressing and reducing OCD symptoms while at school, there is a fundamental gap in the thrust of the extant research. Specifically, there are assumptions within the conceptualization of OCD based upon the traditional mental health model which are unexamined, particularly with respect to child and adolescent populations.

Traditional mental health. When considering the impact of a disorder upon mental health, regardless of population, it is critical to operationally define what is meant by "mental health." Traditionally, mental health has been conceptualized as the extent to which an individual is free from adverse or dysfunctional symptoms. Perhaps the most widely used reference with respect to mental health services - the DSM (APA, 2000) - offers a Global Assessment of Functioning (GAF), a 100-point scale that bases its categories upon the presence and magnitude of symptoms.

Similarly, many of the more common rating scales - ostensibly used to assess mental health - describe only the impact of negative symptoms vis-a-vis maladaptive behaviors. As such, "wellness" means nothing more (or less) than the absence of illness. An underlying assumption within this model of mental health is that the presence and magnitude of disruption within a student's day-to-day life is directly related to the presence and magnitude of negative symptoms.

Subjective well-being. In the traditional medical model of mental health, the concept of "wellness" appears only rarely, referring to the absence – or subclinical presence – of clinically diagnostic symptoms (e.g., psychopathology), such that no disorder or predictable negative outcomes are present. Contrast this with the burgeoning dual-factor mental health model (e.g., Greenspoon & Saklofske, 2001; Suldo & Shaffer, 2008), in which positive indicators of psychological functioning are included (e.g., life satisfaction, and positive and negative affect) under the umbrella concept of subjective well-being (SWB; Diener, 2000).

In this fashion, the idea of wellness can be conceptualized as being a balance of negative and positive "symptoms", where an accurate assessment of wellness in youth would examine psychopathology as well as subjective well-being (Cowen, 1994; Park, 2004; Suldo & Shaffer, 2008). It can be seen that "wellness" therefore is viewed as a measure of the perceived quality of life by an individual. By extension, if "quality of life" is considered to be an amalgamation of positive and negative markers, then it stands to reason that what affects either category of characteristics (e.g., psychopathology or life satisfaction) will affect the overall whole of quality of life (QOL). Notice that in the majority of research to date on pediatric OCD, the focus has been upon psychopathology; in contrast, there is a dearth of literature examining the role of OCD in the state of student life satisfaction, or their SWB overall.

Impact of other disorders on subjective well-being. It becomes useful at this point to ask whether or not there is any evidence to support the utility of using SWB to gauge the impact of health conditions on school-age children and adolescents. Indeed, there has been a recent surge in research examining this very question (e.g., Bastiaansen, Koot, & Ferdinand, 2005; Evans et al., 2005). While the integration of symptoms and well-being is a movement that is short on empirical evidence, the work to date supports the notion that children's life satisfaction is a useful indicator of their functioning and adjustment, independent of symptom presence and severity (Greenspoon & Saklofske, 2001; Suldo & Shaffer, 2008).

Additionally, others have found that life satisfaction is closely related to academic functioning (Suldo, Riley, & Shaffer, 2006), peer relations (Martin & Huebner, 2007), levels of perceived social support (Suldo & Huebner, 2006), and overall physical health (e.g., Michalos & Zumbo, 2002; Zullig, Valois, Huebner, & Drane, 2005). As such, the idea of augmenting traditional assessment methods (e.g., psychopathology) with measures of well-being is not without support. Further, the lack of extensive research into the relationship between chronic mental illness - in this case, pediatric OCD - and subjective well-being is in itself a compelling rationale.

Impact of pediatric OCD on subjective well-being. It is critically important that we increase our understanding of how the various aspects of pediatric OCD are associated with SWB, given that 10-30% of students in the educational system are coping with chronic illness (Clay, 2004; Phelps, 2006; Reiter-Purtill & Noll, 2003). This ever-increasing proportion of students results in educators who are performing a metaphorical balancing act in their attempts to support both the learning and medical needs of students with chronic health conditions – as well as to equitably address the learning needs of all students. This is particularly overwhelming, given that little to no information is provided to assist educators in their efforts (Clay, 2004).

In addition to addressing the growing population of students with chronic illness, a stronger understanding of the relationship between chronic illnesses and SWB is closely aligned with the functional framework for delivering preventive interventions (e.g., Ysseldyke et al., 2006). Specifically, the potential ability to use observed changes in

SWB as an early indicator of illness - chronic or otherwise - equates to an opportunity for earlier intervention in the form of treatment. This is of particular importance given that the research to date on OCD supports a strong relationship between early treatment and successful symptom reduction/remission (e.g., Ledley & Pasupuleti, 2007), as well as minimization of developmental trajectory alteration (Piacentini et al., 2003; Piacentini et al., 2007).

The current study investigated the relationship between pediatric OCD and student subjective well-being. Specifically, the nature of this relationship was explored with respect to various symptom (i.e., severity, intensity), academic (i.e., performance, attendance, homework patterns), and demographic (i.e., age, gender, race, socio-economic status) factors. The following research questions were addressed:

1. What is the relationship between clinical characteristics of pediatric OCD and Subjective Well Being (SWB) in school-age children and adolescents?
2. To what extent do factors related to pediatric OCD (i.e., symptom severity, intensity) moderate the relationship between clinical characteristics of pediatric OCD and SWB in school-age children and adolescents?
3. To what extent does SWB moderate the relationship between clinical characteristics of pediatric OCD and academic (i.e., course grades, attendance, homework patterns) and general functioning in school-age children and adolescents?
4. To what extent do demographic factors (i.e., age, gender, socio-economic status) moderate the relationship between clinical characteristics of pediatric OCD and SWB in school-age children?

Contribution to the Literature

The current study expands the professional literature in clinical, school, and positive psychology with regard to identification of school-age children and adolescents with OCD. Findings supporting academic and demographic variables as moderating the relationship between SWB and OCD provide a larger repertoire of potential tools for earlier identification of OCD within school-aged youth.

Chapter 2:

Literature Review

The purpose of this chapter is to offer the reader a comprehensive review of the existing research relevant to the current study. This includes an introduction and basic conceptualization of obsessive-compulsive disorder (OCD), an examination of concerns specific to pediatric OCD populations, an overview and critique of traditional assessment methods associated with OCD and other chronic health conditions, and an explanation of and rationale for subjective well-being (SWB) within the dual-factor mental health model.

Obsessive Compulsive Disorder

Overview. Obsessive Compulsive Disorder is the fourth most commonly diagnosed mental disorder, impacting the lives of between six and nine million Americans – slightly more than 2% of the United States population (Kessler et al., 2005). With respect to pediatric onset, 1 in 200 children and adolescents suffer from OCD (Flament et al., 1988), and one-half or more of adults with OCD report that symptom onset began during childhood or adolescence (Pauls, Alsobrook, Goodman, Rasmussen, & Lekman, 1995; Mancebo et al., 2008; Narrow, Rae, Robins, & Regier, 2002; Wewetzer et al., 2001). Obsessive Compulsive Disorder is a psychiatric disorder consisting of two primary symptoms – obsessions and compulsions – which combine to impair daily functioning across a variety of domains.

The Diagnostic and Statistical Manual (DSM-IV-TR; American Psychiatric Association [APA], 2000) defines obsessions as intrusive and recurrent thoughts or impulses which, due to being incompatible with an individual's self-image and disturbing in nature, act to increase anxiety. Compulsions are repetitive mental acts or behaviors, the performance of which acts to reduce the anxiety produced through existing obsessions (APA, 2000).

In addition to obsessions and compulsions, the DSM delineates four additional diagnostic criteria necessary for a clinical diagnosis of OCD. First, the severity of obsessions and compulsions is such that a significant amount of time (e.g., more than one hour each day) is devoted to engaging in or resisting them, or they must cause significant impairment and/or distress. This requirement is similar to those listed in the DSM for many other disorders, and is meant to set an objective threshold for determining the extent to which such symptoms impair social, occupational, or other functioning.

The second criterion is that the content of the obsessions and compulsions cannot be restricted to any comorbid presenting Axis I disorder. In other words, the obsessive thoughts and/or compulsive behaviors must go beyond those typically associated with another mental health or learning disorder. Examples include a preoccupation with hair when diagnosed with trichotillomania, or controlled eating patterns and/or purging rituals in the presence of an eating disorder. Similarly, the third requirement for diagnosis states that the obsessions and compulsions cannot be explained as a direct result of a general medical condition, or use/abuse of a drug or medication.

Last, there must be a realization by the individual, at some point in the course of the disorder, that their obsessions and/or compulsions are excessive or inappropriate (APA, 2000). It is important to note that this requirement, often referred to as insight, is not applicable to the diagnosis of OCD in children and adolescents. The import of this rests in the necessity to ascertain and incorporate a child's developmental level into any diagnostic assessment for OCD. This is particularly salient when recognizing that OCD symptoms commonly display an onset in childhood or adolescence (Rasmussen & Eisen, 1990; Wewetzer et al., 2001).

Concerns Specific to the Pediatric OCD Population

Phenomenology. Examination of the literature regarding symptom presentation among children and adolescents lends support to the notion that, while individuals with OCD appear to be heterogeneous with respect to the specific symptoms experienced at any one point (e.g., McKay et al., 2006; Stewart et al., 2008), symptom themes can nevertheless be categorized into recognizable and meaningful groups. Thus, although the permutation of presenting symptoms varies by individual (McKay et al., 2006; Rasmussen & Eisen, 1992), as seen in Table 1 below, there are combinations of compulsions and obsessions which are commonly endorsed (Masi et al., 2005; Rettew, Swedo, Leonard, Lenane, & Rapoport, 1992).

For example, frequently observed obsessions include those related to fear of harm to self or others, religious and moral beliefs, fear of contamination, desire for symmetry or "just-rightness", and fear of undesirable impulses (Storch et al., 2009). Note that these obsessive thoughts are aligned with frequently endorsed compulsions. For example, fear of harm yields harm avoidance rituals, religiosity or scrupulosity fears are addressed maladaptively through prayer- and reassurance-related routines, and fears of contamination lead to excessive washing and cleaning (Scahill et al., 2003).

This pairing of obsessions and compulsions is often conceptualized via a behavioral conditioning model, wherein operant conditioning of avoidant compulsions occurs due to negative reinforcement via anxiety reduction. Figure 1 below shows such a conceptualization, using the example of dogs. In this example, a child develops the belief that approaching a dog will lead to the frightening consequence of being attacked and/or bitten by said dog.

Table 1

Commonly Endorsed Compulsions and Obsessions in Pediatric OCD

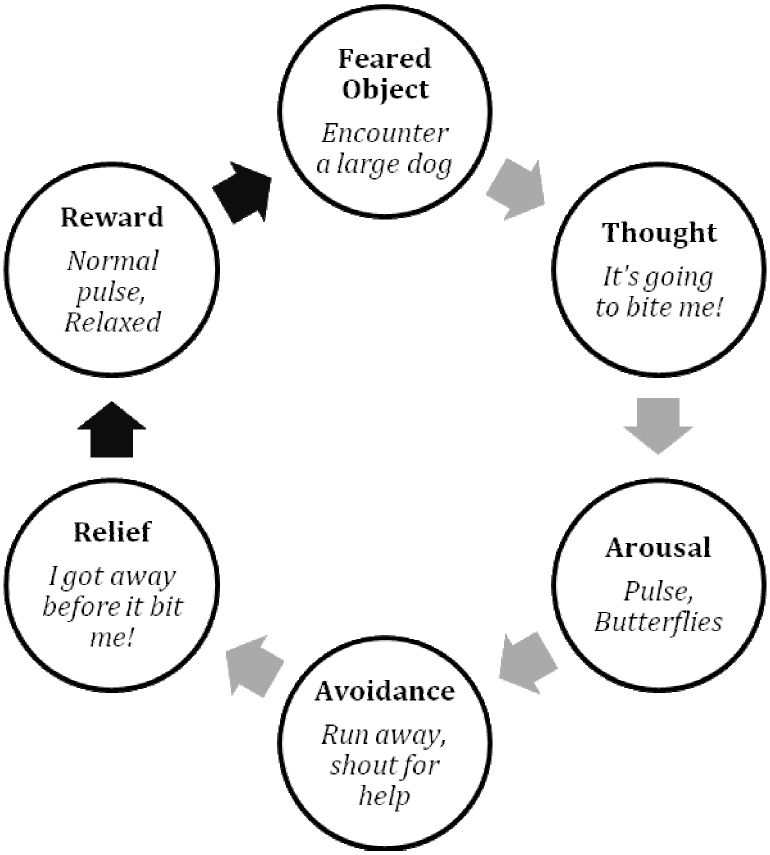
Obsessions	Compulsions
Contamination	Washing
Harm to self or others	Repeating
Aggressive themes	Checking
Sexual ideas/urges	Touching
Scrupulosity/religiosity	Counting
Symmetry urges	Ordering/Arranging
Need to tell, ask, confess	Hoarding/Praying

Therefore, the notion of approaching the dog stimulates an aversive physiological response in the child (e.g., increased heart rate, “butterflies” in the stomach, tensing of muscles). Note that while avoidance of the feared dog reduces this bodily response, the child perceives that the avoidance also is directly responsible for avoiding the feared consequence (dog attack/bite). As such, avoidance of the feared object receives a double dose of reward (Weisz, 2004).

In such an operant conditioning model, the compulsory rituals are often assumed to be motivated by a negative affect – fear, disgust, doubt, premonitory urge, or feelings of asymmetry (Goodman, Rasmussen, Foa, & Price, 1994). Thus, the intrusive thoughts or images act to increase anxiety, the subsequent ritualized behaviors temporarily reduce anxiety, and the link between anxiety and avoidance is strengthened (Storch, 2005).

Figure 1

Behavioral Conditioning Conceptualization of Anxiety



Causes and risk factors. Although basic behavioral theory does an adequate job of explaining the strengthening and maintenance of a link between obsessive thoughts and compulsive behaviors, it does little to account for the genesis of intrusive thoughts in the first place. The preponderance of research to date has found that onset of symptoms is typically rapid and may or may not be associated with some setting event, such as a dog attack or a near-drowning (Moore, Mariaskin, March, & Franklin, 2007). Contrast this with a behavioral or classical conditioning model, in which an anxiety-producing unconditioned stimulus (i.e., pain) would be paired with a neutral stimulus (in this case, the dog), producing an initially tenuous relationship between the newly conditioned stimulus (the dog) and the conditioned response (anxiety).

Behavioral theory notwithstanding, much research has been focused upon illuminating possible causes and risk factors for OCD (e.g., Carter & Pollock, 2000; King, Leonard, & March, 1998). Although there has been no discrete biological link found to account for OCD, multiple potential contributing factors have been uncovered. For example, investigation of brain structure and functioning has found changes in architecture and operation localized to specific areas, including the anterior cingulate, thalamus, orbitofrontal cortex, and basal ganglia (Kang, Kim, & Choi, 2004).

Various twin studies looking for genetic components have shown increased occurrence of OCD among identical twins, as compared to fraternal twins, as well as increased incidence among immediate family of those diagnosed with OCD (e.g., Rasmussen, 1993). Other pediatric studies have illuminated the relationship between streptococcal infections and onset of OCD symptoms, a phenomenon termed Pediatric Autoimmune Neuropsychiatric Disorder Associated with Streptococcal infections (PANDAS; Murphy, Petitto, Voeller, & Goodman, 2001; Murphy & Pichichero, 2002; Swedo et al., 1998). Results support the hypothesis that such infections elicit a response by the autoimmune system deleterious to brain structure; more specifically, the autoimmune response inflicts minute damage to the basal ganglia, resulting in symptoms of OCD, tics, chorea, and hyperactivity (e.g., Larson, Storch, & Murphy, 2005; Murphy, Petitto, Voeller, & Goodman, 2001; Murphy & Pichichero, 2002; Snider & Swedo, 2004).

To date, research examining a biological basis for OCD has found some genes believed to be associated with the disorder; however, there is no specific gene or combination of genes implicated in causing OCD (Samuels, 2009). Conversely, a purely environmental causal factor has yet to identified as "causing" OCD in pediatric or adult populations (Flament et al., 1988). Instead, a variety of behavioral, psychosocial, environmental and biological factors appear to be implicated as risk factors and/or causal agents in pediatric OCD.

Developmental considerations. Another aspect of research in the pediatric OCD literature has been an effort to determine the impact of OCD upon the developmental trajectory and social relationships of children (e.g., Evans et al., 1997; Steketee & Van Noppen, 2003). At this point, it is helpful to consider several differences between OCD in adult and pediatric populations. Some of the more thoroughly investigated examples of these differences include those associated with symptoms, demographics, interpersonal relationships, and quality of life.

Symptom-related differences. Although certain categories of obsessions and their related compulsions are commonly reported among the OCD population as a whole, there is evidence to support a clear difference in the frequency of endorsement for these categories between adults and youth (e.g., Geller et al., 2001; Goodman, Rasmussen, Foa, & Price, 1994; Swedo et al., 1989). For example, Geller and colleagues (2001) report that, among youth, the most commonly endorsed compulsions are harm avoidance rituals (utilizing rigid travel routes, stepping over cracks, etc.), cleanliness routines (e.g., excessive handwashing), and hoarding behaviors; however, Goodman, Rasmussen, Foa, and Price (1994) indicate that sexual and religious obsessions (worries that "God hates me"), as well as checking behaviors (e.g., unlocking/locking routines), are significantly more common among adults. Of note is the commonly observed lack of insight into symptom severity – and impact – among youth. More specifically, an inability to understand the function of these symptoms can itself result in or exacerbate superstitious, or magical, thinking.

Demographic-related differences. In addition to differences observed in symptom severity, intensity, and topology, there are multiple research findings that support differences across demographic factors. Perhaps the most studied difference is that related to gender. Pediatric OCD studies have consistently found a differential prevalence rate of approximately 4 males for every female (e.g., Flament et al., 1998; Zohar, 1999); however, in adolescent and adult populations, this observed difference approaches zero (Flament et al., 1988).

These observations are of interest for at least two reasons. First, such a significant change across the developmental timeline supports the notion that the "typical" age of onset differs across genders, and that such a developmental difference in onset may translate into differences in how the individual perceives and manifests their symptoms (Leonard et al., 1993; Rutter & Sroufe, 2000; Snider & Swedo, 2000). The second point of interest is related to recent efforts at prevention and early intervention with respect to chronic health conditions (e.g., Anda et al., 2007; Briggs-Gowan et al., 2003); such a difference can be used to design more accurate and effective screening procedures within schools, as well as to adjust or revise existing procedures for identifying at-risk children and adolescents (e.g., Drotar, Stancin, Dworkin, Sices, & Wood, 2008; Hix-Small, Marks, Squires, & Nickel, 2007).

Relationship-related differences. There are also differences between adult and pediatric populations related to the impact of OCD on presence and quality of social relationships. Untreated pediatric OCD is related to a decrease in both the number and perceived quality of children's peer relationships, and the amount of support they perceive to exist within their family is significantly lower than in non-diagnosed peers (POTS, 2004).

The reported proportion of school-aged individuals endorsing peer relationship difficulty has been as high as 75% (e.g., Allsopp & Verduyn, 1990; Langley, Bergman, McCracken, & Piacentini, 2004; Storch et al., 2006). Beyond the perception of support, the presence of effective communications within and among family members has been found to be negatively impacted by OCD (e.g., POTS, 1994; Langley, Bergman, McCracken, & Piacentini, 2004). Of particular interest is the entanglement of gender with relationship difficulties. For example, Allsopp and Verduyn (1990) found that nearly all (96%) of male adolescent individuals reported difficulty with peer networks, which is in contrast to roughly half (46%) of female adolescents making the same endorsement.

It is worth noting that most of the individuals interviewed in pediatric studies report that many of their relational difficulties predated receipt of OCD diagnosis (Allsopp & Verduyn, 1990; Langley, Bergman, McCracken, & Piacentini, 2004). While this phenomenon raises questions as to whether these difficulties are a result of, a causal factor for, or simply related via a third-party variable to OCD (e.g., Storch et al., 2005;

Storch et al., 2006), the fact remains that the secondary problems experienced (e.g., impaired relationships with peers and families) act to set these individuals apart from their typically developing peers (Piacentini, Bergman, Keller, & McCracken, 2003).

This warrants consideration, given that the major diagnostic criteria for OCD - obsessive thoughts and ritualized behaviors - are to some degree typical of any developing child (King, Leonard, & March, 1998). Here it can be seen that additional criteria (e.g., distress) are necessary for accurate diagnosis. Carter and Pollock (2000) opined that the only truly reliable method of determining whether observed behaviors in children and adolescents were related to OCD was the presence or absence of distress associated with the behaviors in question.

Such distress appears to be a result of an excessive sense of personal responsibility often associated with OCD (e.g., Salkovskis, 1999). Rachman (1993) introduced the term “thought-action fusion” to illuminate the maladaptive belief that thinking about a distressing event is equivalent to the event having actually occurred. An example is the common childhood thought of hitting an annoying peer or sibling, followed almost immediately by anxiety and/or feelings of shame analogous to those experienced in response to having *actually hit* the friend or relative.

This mechanism is thought not only to produce feelings of guilt for events outside the scope of influence for the individual, but also to evoke an inappropriate sense of influence over future events. The importance of this phenomenon - termed “cognitive control” - lies in its established utility of distinguishing children and adolescents with OCD from their typically developing peers, as well as in discriminating between individuals with OCD and those with other anxiety disorders (Barrett & Healy, 2003). As will be discussed later in this chapter, the ability to reliably determine the presence and extent of cognitive control, via measures that assess locus of control, is critical to providing a useful means for differentiating individuals with OCD from individuals with other anxiety disorders.

Quality of life. When examining the impact of OCD upon youth, it is important to understand that the disorder is chronic and unremitting when untreated (Eisen et al., 2006; Piacentini, Bergman, Keller, & McCracken, 2003; Rapoport, Clary, Fayyad, & Endicott, 2005). Quality of life impairment for youth with OCD includes decreased work performance at home or school, decreased enjoyment from pleasant activities, and altered or absent relationships with peers (Geller et al., 2000; Markarian et al., 2010; Lack et al., 2009; Markarian et al., 2009; Peris et al., 2008; Piacentini et al., 2003; 2007; Sukhodolsky et al., 2005). While Eisen and colleagues (2006) have suggested that it is the obsessive thoughts or images which account for most of the quality of life impairment, it is still not clear whether this observation is a function of the disorder, or if there is a relationship between obsession-related impairment and help-seeking behaviors (Eisen et al., 2006; Lack et al., 2009).

Put very plainly, the existing literature does not address whether the persistent obsessive thoughts result in impairment of quality of life, or instead they are related to the child or adolescent seeking treatment. In such a case, it is possible that a more complex interplay of psychosocial factors may be responsible for a diminished quality of life. Further, there is a dearth of research into how any such relationship might change over the developmental lifespan (e.g., Piacentini, Bergman, Keller, & McCracken, 2003; Piacentini et al., 2007).

School-related quality of life. The impact of pediatric OCD on the quality of life of a child or adolescent is perhaps most evident within their school, where the anxiety produced through obsessive thoughts and images is reduced through ritualized behaviors. These behaviors, in turn, are often observed by teachers, peers, and other school personnel (Piacentini et al., 2003 2007). The overt rituals of repeated handwashing, straightening, or repetitive motions are seen as unusual by others, which can result in increased peer harassment and/or bullying (e.g., Storch et al., 2006).

Beyond the obvious anomalous behaviors, covert rituals have the potential to significantly impact academic performance (Lack et al., 2009; Valderhaug & Ivarsson, 2005). It is these “invisible” routines, which can include mentally repeating words, and counting words or numbers according to predetermined and subjective mental rules, which place the largest load on a student’s attention and concentration (Ledley & Pasupuleti, 2007). Every minute of time that is occupied in temporarily reducing anxiety removes the amount of time during which the student is exposed to curricular materials and effective instruction (Hollander et al., 1996; Ledley & Pasupuleti, 2007). As such, these infrequently observed rituals can result in an insidious and pervasive impact upon academic performance, yielding an achievement gap which, without treatment, continues to propagate (Ledley & Pasupuleti, 2007; Piacentini et al., 2003; 2007).

Comorbidity. A spate of pediatric anxiety research has focused upon investigation into comorbidity of these disorders with other conditions. Reported comorbidity rates within pediatric samples range from 10-73% for major depressive disorder, 26-70% for anxiety disorders, 17-59% for tic disorders, 10-53% for disruptive behavior disorders, and 10-50% for Attention-Deficit/Hyperactivity Disorder (ADHD;

Geller et al., 2001, 2003; Hanna, 1995; Riddle et al., 1990; Storch et al., 2008b; Swedo et al., 1989). Though large, with respect to OCD these rates should not be surprising.

Given the natural consequences of its symptoms, such as social isolation and impaired peer relationships, OCD has been characterized as depressogenic (Carter & Pollock, 2000; Geller, 2006). That is to say, these symptoms can lead to children and adolescents receiving comorbid diagnoses of depression. With respect to comorbid ADHD, there are other issues of concern; specifically, difficulty with maintenance of attention and completion of homework, in therapy (Storch et al., 2008) or in school (Piacentini et al., 2003; Piacentini et al., 2007), can result in additional impairment when compared to a diagnosis of OCD alone (Sukhodolsky et al., 2005). Such a magnifying effect is not confined to ADHD comorbidity; the presence of tics in childhood or early adolescence predicted an increase in obsessive-compulsive symptoms later in life (Peterson, Pine, Cohen, & Brook, 2001).

In addition to the presence of comorbid conditions, the previously discussed minimal or absent insight within youth equates to a reduced likelihood of perceiving their symptoms to be distressing or causing impairment (American Academy of Child and Adolescent Psychiatry [AACAP], 1998). Taken together, the various direct and indirect effects of comorbidity are salient to an understanding of how OCD impacts daily functioning, and indicate the critical need for accurate and comprehensive methods with which to discern and assess this impact.

Assessment

To date, the overwhelming majority of research into pediatric OCD has focused upon symptomology (e.g., Geller et al., 2001; Geller, 2006), problems with academic performance (e.g., Piacentini et al., 2003; Piacentini et al., 2007), or difficulties in social relationships with peers and family (e.g., Adams, Waas, March, & Smith, 1994). This work is important in that pediatric OCD can be described and recognized within multiple domains; however, existing research has predominantly been anchored within a traditional mental health model, and therefore makes several assumptions regarding the conceptualization of OCD and of mental health itself. It is worth examining these assumptions by reviewing this mental health model, and by comparing the model to other alternatives.

Traditional mental health model. Assessment of mental health historically has relied upon the presence of psychopathology to determine diagnosis (Keyes, 2002, 2007). Within such a model, it becomes vital to operationally define psychopathology. Often, psychopathology is conceptualized as symptoms of behavioral dysregulation. That is to say, it is split between disorders characterized by observable problem behaviors - the “externalizing” disorders, such as oppositional defiant disorder - and those disorders characterized by covert problem behaviors - the “internalizing” disorders, such as depression or anxiety (American Psychiatric Association [APA], 2000).

Generally speaking, internalizing disorders can be thought of as referring to an individual’s attempt to control their emotions and thoughts in a manner that is maladaptive (Merrell, 2008; Reynolds, 1992). In contrast, externalizing disorders are those conditions in which an individual displays an inability and/or lack of motivation to control their behavioral impulses (Merrell, 2008). Perhaps as a logical outgrowth of this conceptualization, mental health assessment has relied increasingly upon the presence and “direction” (overcontrol or undercontrol) of psychopathology within an individual (Keyes, 2007; Doll, 2008).

A compendium commonly used by mental health practitioners, the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-TR; APA, 2000) promotes such a model of psychopathology-driven assessment, by providing a comprehensive system of nosology based primarily upon the presence or absence of problematic characteristics. Although such a system is defensible in that it facilitates communication among practitioners - and between providers and payment sources (Durand & Carr, 1987; Frick, 2004), there is some question as to the extent to which this system - or any nosology - protects against furthering a society’s mores and customs at the expense of behaviors from those outside that society (e.g., Durand & Carr, 1987). Put another way, if the only measure of determining abnormality of a behavior is by the extent to which it differs from behavior accepted by a social majority, then so-called psychopathology becomes nothing more than violation of a culture’s norms (Maddux, Gosselin, & Winstead, 2005; Seligman & Csikszentmihalyi, 2000).

OCD and the traditional model. The most commonly used methods for assessing OCD fall entirely within the traditional model described above. For example, diagnosis of OCD is typically achieved in adults and children via broad or narrow measures of psychopathology presence and severity. The most commonly used broad measures include two interviews based upon the DSM-IV-TR, as well as a broad categorical rating scale.

The two interviews are the Anxiety Disorders Interview Schedule for the DSM-IV - Child and Parent Versions (ADIS-C/P; Silverman & Albano, 1996), and – for adults –

the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I; First & Gibbon, 2004). The rating scale is the Multidimensional Anxiety Scale for Children (MASC; March, Sullivan, & Parker, 1999). It is of note that while both interviews consist mainly of questions about past and current DSM-IV diagnoses, the MASC uses a summed score from four scales to determine the presence of an anxiety disorder. Further, all of the broad measures include methods for rating symptom severity.

A valid concern with respect to narrow measures is that they should always be used as part of a comprehensive battery of assessment instruments and techniques. For example, the use of narrow band measures has the potential to identify the presence of diagnostic criteria for specific disorders, as well as facilitating differentiation between disorders of a specific class/category (e.g., separation anxiety vs. generalized anxiety disorder). However, these powerful benefits are balanced by the potential of failing to identify larger issues or behavioral trends that comes with relying solely upon narrow band instruments.

The narrow measures are intended to identify specific symptoms and rate their severity. With respect to OCD, the key characteristics used to determine symptom severity include the amount of time spend in engaging in obsessions or compulsions, the extent to which existing distress can be linked to endorsed symptoms, and the degree of impairment within various aspects of the individual’s life (Keeley, Storch, Dhungana, & Geffken, 2007). Narrow measures commonly used for pediatric OCD include the Children’s Yale-Brown Obsessive Compulsive Disorders Scale (CY-BOCS; Scahill et al., 1997), the Children’s Florida Obsessive Compulsive Inventory (CFOCI; Storch et al., 2009), and the Family Accommodation Scale for Obsessive-Compulsive Disorder (FAS; Calvocoressi et al., 1999).

Subjective Well-Being. In an effort to move away from conceptualizing individuals solely as a collection of emotional and behavioral deficits, the positive psychology movement has symbolized a demand for shifting the field of psychology toward prevention and empowerment (Seligman, 2005; Seligman & Csikszentmihalyi, 2000). As such, the focus is upon a person's level of functioning, determined primarily through their quality of life. Quality of life is a social construct defined basically as the degree to which objective basic necessities (e.g, food, shelter, safety) and subjectively enriching conditions (e.g., social opportunities and community-based activities) are perceived as present by an individual within their life (Schalock & Parmenter, 2000). Perceived quality of life is often used interchangeably with the term "life satisfaction," an individual's global cognitive appraisal regarding his or her life circumstances. Multiple variables are suggested as indicating mental health (Seligman, 2005), and are typically temporally categorized within an individual's present (joy), past (e.g., satisfaction and well-being), and future (hope and optimism).

With respect to mental health assessment within the instructional arena, Pittman (1992) challenged educators to focus upon four positive categories of developmental outcomes: (a) character; (b) competence; (c) confidence; and (d) connection. As such, subjective well-being (SWB; Diener, 2000) is generally accepted as a wellness-based construct with which to assess the four categories, given that SWB allows individuals to provide an evaluation of their life functioning and quality of life (Keyes, 2009).

For the purposes of the current study, evaluation of SWB was selected for use in assessment. SWB, often referred to as a scientific operationalization of happiness, is typically considered to consist of how a person thinks and feels about his or her life (e.g., Oishi, Diener, & Lucas, 2007). According to Diener (2000), SWB can be deconstructed into separate though related components: positive affect, negative affect, and life satisfaction.

Life satisfaction is generally considered to be the cognitive component of SWB (Oishi, Diener, & Lucas, 2007). Life satisfaction can be conceptualized as a global or domain-specific construct, measuring happiness overall or across various environments, respectively (Huebner, Gilman, & Laughlin, 1999). Positive and negative affect entail a person's emotional evaluation of occurrences in their life (Diener, Suh, Lucas, & Smith, 1999). Although life satisfaction evaluations are considered to be fairly stable, affective evaluations are typically temporary, consisting of moment-to-moment experiences (Kim-Prieto, Diener, Tamir, Scollon, & Diener, 2005).

Subjective well-being and psychopathology. The birth and growing support for the positive psychology movement has brought about a call for a more integrated method with which to understand mental wellness, a method whereby mental health means not just the absence of psychopathology, but the presence of positive indicators (Keyes, 2007; Seligman, 2005). Of particular interest is research with pediatric populations suggesting that mental health cannot be conceptualized simply as a measure of psychopathology; instead, indicators of wellness *and* psychopathology inform the most complete description of mental health possible (Greenspoon & Saklofske, 2001; Keyes, 2002). The dual-factor mental health model is one example of such a method, including indicators of psychopathology and positive indicators - in this case, SWB - to comprehensively assess mental functioning in children and adolescents (Greenspoon & Saklofske, 2001; Suldo & Shaffer, 2008).

The first support for the dual-factor mental health model came from a study by Greenspoon and Saklofske (2001), in which Canadian primary school students were assessed for psychopathology, SWB, personality traits, interpersonal relations, and perceived locus of control. There were two findings of particular interest, the first of which was the existence of two previously unidentified categories of student: children who endorsed high rates of psychopathology and high SWB (Symptomatic but Content); and children who scored low on both SWB and endorsed psychopathology (Vulnerable). The second finding was that - regardless of level of endorsed psychopathology - those students scoring low on SWB measures had lower academic self-concept and markedly poorer skills related to interpersonal communications.

Additional support for the dual-factor mental health model came from Suldo and Shaffer (2008), in which the model was tested with middle school students. Student measures were included for SWB, internalizing psychopathology (e.g., depression, anxiety), social functioning, and school attitudes. Additionally, teacher input was included to tap externalizing psychopathology for observed students. The findings supported and extended Greenspoon and Saklofske's 2001 study, agreeing that students could be categorized into four related but distinct mental health groups. The groups described are shown in Table 2.

Of particular utility were several findings by Suldo and Shaffer (2008), the first of which was that students with complete mental health were more academically successful (i.e., higher standardized reading scores, lower absentee rate) than students described as vulnerable. Similarly, students described as vulnerable endorsed lower motivation for behavioral self-regulation, as well as lower academic self-concept. With respect to interpersonal communications skills, those students described as troubled perceived fewer peer relationships and less parental support than those students described as symptomatic but content (2008).

Table 2

Dual-Factor Mental Health Model Student Categories

		SWB	
		LOW	HIGH
Psychopathology	HIGH	Troubled	Symptomatic but Content
	LOW	Vulnerable	Complete Mental Health

Findings in studies such as the ones completed by Greenspoon and Saklofske (2001) and Suldo and Shaffer (2008) support the utility of the dual-factor mental health model in providing a more comprehensive assessment of student functioning. Further, these studies provide evidence that categorization of students into the delineated groups accurately predicts future student academic performance. As such, it would appear that this model provides a framework based upon attending to life functioning and student empowerment, in contrast to the traditional model's focus upon the presence and magnitude of variables which *decrease* a student's ability to function.

SWB and OCD assessment within schools. Research suggests that having high SWB is an indicator of positive self-concept, as well as of higher quantity and perceived quality of peer and family relationships (Suldo & Huebner, 2006). Further, high SWB scores have been found in at least one study to be related to higher school functioning and more positive attitudes toward schooling (Suldo & Shaffer, 2008). Additionally, the presence of happiness (SWB) has consistently been linked with benefits across academic, social, and emotional domains (e.g., Lyubomirsky, King, & Diener, 2005). Findings such as these are encouraging in that they suggest some sort of protective factor against the very symptoms commonly associated with pediatric OCD.

Academic performance. There are recent examples supporting the existence of a relationship between SWB and students' perceived academic experiences (Suldo, Shaffer, & Rily, 2008), as well as their academic self-efficacy (Huebner, Gilman, & Laughlin, 1999; Suldo & Huebner, 2006). In addition to the cognitive component of SWB, the emotional aspect - positive and negative affect - has also been related to student engagement in academic tasks (Reschly, Huebner, Appleton, & Antaramian, 2008). Specifically, results suggested that the presence of positive affect is related to student engagement, while negative affect indicates a lower likelihood of being academically engaged.

Social relations. In addition to academic-based perceptions, other research has examined the relationship between life satisfaction and social perceptions. For example, McKnight, Huebner, and Suldo (2002) suggest that life satisfaction is correlated with the ability to cope adaptively with environmental stressors within the school. Similarly, other findings indicate a strong positive relationship between satisfaction with life and perceptions of social support related to academic endeavors (Suldo & Huebner, 2006; Suldo & Shaffer, 2008), as well as positive interpersonal relationships with teachers (Gilman & Huebner, 2006).

Student behavior. The school-based benefits associated with SWB are not limited to social and academic perceptions of experience, as recent research suggests that student happiness is strongly related to student behavior on campus (e.g., Varjas et al., 2006). Examples of such behaviors include attendance patterns, peer harassment (bullying), and violent behaviors. With respect to student attendance, limited research has found that students with complete mental health (i.e., scoring high on SWB, and low on psychopathology measures) exhibited significantly fewer numbers of school absences when compared to vulnerable (i.e., scoring low on SWB and endorsed psychopathology) students (Suldo & Shaffer, 2008). Note the implicit suggestion that the presence of *positive* indicators affects school attendance, instead of the traditionally assumed deficits associated with psychopathology.

Other studies have examined the role of happiness with respect to specific behaviors, both peer-directed and global. One such study focused upon bullying, relational aggression, and supportive behaviors in more than 500 middle school students. It was found that students reporting high life satisfaction and positive affect (e.g., high SWB, or happiness) were more likely to report prosocial (supportive) behaviors, and less likely to endorse reports of bullying or relational aggression (Martin & Huebner, 2007).

Multiple studies investigating other problem behaviors have found strong negative relationships between life satisfaction and non peer-directed problem behaviors. For example, a large (N>5,000) study of high school students found that students reporting lower levels of life satisfaction were significantly more likely to endorse having engaged in a physical altercation - or brought a weapon - on school grounds within the previous month, as compared to their happier peers (MacDonald, Piquero, Valois, & Zullig, 2005). Note that these findings were virtually replicated in a separate study (N=2000) of middle school students (Valois, Paxton, Zullig, & Huebner, 2006).

Findings such as those discussed above affirm that student happiness is directly related to desired academic outcomes - whether in terms of scholastic attitude, peer and teacher relationships, school attendance, or behavior in general. In addition, a study suggests that adults with low life satisfaction are more likely to be diagnosed with depression in the future (Lewinsohn, Redner, & Seeley, 1991). While extrapolation to school-age population is problematic, such a relationship between life satisfaction and subsequent diagnosis is troubling, given that a diagnosis of pediatric depression is indicative of subsequent poor academic performance (Fergusson & Woodward, 2002).

Summary

The research examined in this review has shown the importance of increasing our understanding of how the various aspects of pediatric OCD impact student SWB. The research into pediatric OCD consistently has shown areas of potential deficit in skills critical to student success in school. Given evidence to support a relationship between early treatment of OCD and successful symptom reduction (e.g., Ledley & Pasupuleti, 2007), the potential to improve our methods of assessment for OCD - in terms of both accuracy and time - would be a large step toward prevention through early intervention.

Although extant research into the dual-factor mental health model supports its utility in providing a more comprehensive assessment of student functioning than does the traditional mental health model, such a model of assessment is still in the early stages within our schools. As such, there is a gap in the literature surrounding the nature of the relationship between pediatric OCD and student happiness. Specifically, it is not yet known whether or not meeting diagnostic criteria for pediatric OCD can alter or restrict the range of observed student SWB.

Further, little is known about how various factors may impact this relationship. For instance, given the research to date related to quality of life for children with OCD, it seems likely that changes in symptom severity or intensity would impact the relationship between diagnosis and happiness. Similarly, SWB seems likely to impact the relationship between OCD and the behaviors and perceptions of students related to school – such as attendance, course grades, or completion of homework. Finally, there is silence within the literature as to whether or not (and to what extent) family factors - including age, gender, and SES - affect the relationship between diagnosis and SWB. This point is of considerable interest, given the differences in OCD prevalence observed between genders throughout development (e.g., Tukel et al., 2005), as well as the differences in treatment-seeking likelihood associated with family income (e.g., Stewart et al., 2004).

As such, the purpose of the current study is to explore the impact of various measurable variables upon the relationship between OCD and SWB in school-aged youth. The importance of understanding the role of such variables is two-fold. First, the body of literature examining the interplay between SWB and chronic pediatric conditions is in its infancy, and investigation into a specific condition (in this case, pediatric OCD) would expand and inform this literature base. Second, the level of awareness and perceived importance that educational personnel have regarding chronic conditions – particularly mental health conditions – is extremely variable between individuals, yet extremely limited overall. Therefore, the ability and tools to screen for such conditions within schools is poor at best. The potential for identification of academic and demographic variables that are related to these conditions would significantly increase the ability of school-based personnel (e.g., school psychologists, teachers, guidance counselors) to utilize more effective screening methods for chronic health conditions within the schools.

Increasing our understanding of the relationship between OCD and SWB has the potential to explain why the disorder impacts some youth more strongly than others. In turn, such an explanation could identify multiple academic and demographic risk factors for pediatric OCD, thereby increasing the possibility for early identification and intervention in school-aged populations.

Chapter 3:

Methods

The purpose of this chapter is to provide a detailed description of the current study's methodology. As such, the chapter includes participant descriptive information, an overview of the research design used, and the instruments administered in the course of the study. In addition, participant recruitment is explained, data collection procedures and timelines are discussed, and the data analysis procedures are provided and justified for each research question.

Participants

The participants in this study were youth and their families seeking treatment at the Rothman Pediatric Neuropsychiatry Clinic – a pediatric outpatient clinic at the University of South Florida. Consent for participation was obtained from parents via an informed consent form (see copy of Consent/Assent form approved by University of South Florida in Appendix B), presented upon initially meeting with youth and their families. In addition, subsequent to explanation of the current study's purpose, potential participants were asked to sign an informed assent form (see copy of Consent/Assent form approved by University of South Florida in Appendix B). In the course of such explanation, the principal investigator or a research assistant explained to the families that they had the right to withdraw from the current study during any point of data collection.

Inclusion criteria for participation in the current study included being between 7 and 17 years of age, having sufficient proficiency with the English language to allow completion of rating scales and interview, and having a new or confirmed clinical diagnosis of OCD via the Rothman Center. Candidates were excluded from participation if diagnoses for intellectual disability and/or psychotic disorder were present. These criteria were based upon the availability of participants (to be discussed further when describing the study setting); the school-aged population of interest; and the need for participants to be able to read and understand rating scale questions, and to reliably distinguish between fantasy and reality.

Completion of power analysis via G*Power software (Erdfelder, Faul, & Buchner, 1996) revealed that, in order to reliably discern a medium correlational effect size (*r*=.3) at an alpha level of .05, the minimum number of participants was 64 (with actual power being .8005). For the purposes of the current study, a total of 65 families were recruited for participation. This was based upon the time-limited nature of the study, as well as ensuring that the necessary number of youth and families could be maintained despite potential participant attrition or withdrawal.

Setting

The youth recruited were drawn from families seeking treatment from the Rothman Pediatric Neuropsychiatry Clinic, a pediatric outpatient clinic at the University of South Florida. The use of this setting provided a positive research dynamic with respect to study procedures. For example, there are multiple ongoing research studies at any given time within the Clinic, which offer eligible youth the opportunity to receive high-quality evidence-based mental health treatment at reduced or no cost to their family.

As part of determining their eligibility for such studies, all youth and their families seeking treatment at the Rothman Center are asked to complete a comprehensive assessment packet during their intake procedure. Although agreement or refusal to complete the packet does not affect the quality or availability of treatment, it is observed that the majority of families complete the assessment packet. This combination of circumstances results in a setting within which the necessity for additional paperwork, as part of the current study, was not necessarily perceived by families to be a burden. As such, families within the Clinic are often observed to provide consent/assent for research studies without need for additional incentive.

Research Design

A non-experimental correlational design was used to address the research questions for this study, which examined the relationship between clinical characteristics of OCD and subjective well-being (SWB), as well as how various factors related to symptoms, demographics, and attitudes impacted this relationship. The research questions were addressed via collection and analysis of rating scale and clinical interview data; specifically, a battery of self-report rating scales, parent rating scales, and a clinician semi-structured interview that were reviewed and approved by the University of South Florida Institutional Review Board (IRB).

Dependent variables for the current study included the presence and extent of obsessions, compulsions, and distress necessary for diagnosis of OCD, as well as the subjective ratings of life satisfaction and positive/negative affect associated with SWB. Independent variables included factors specific to symptom descriptors (i.e., intensity, severity), participant demographics (i.e., age, gender, SES), and participant behaviors and perceptions with respect to schooling and academics (i.e., attendance, homework completion, school performance).

Measures

Ten instruments were used in the study: a demographic information form; the Child Behavior Checklist; the Child Obsessive-Compulsive Impact Scale (Parent and Child versions); a researcher-developed Academic Impact Inventory; the Children's Yale-Brown Obsessive-Compulsive Scale; the Children's Depression Inventory 2 Self-Report; the Multidimensional Anxiety Scale for Children; the Students' Life Satisfaction Scale; and the Positive and Negative Affect Scale for Children. A descriptive overview of each instrument follows. Note that, unless otherwise specified, measures not included in the Appendices were withheld due to copyright restrictions.

Clinic demographic form. The purpose of the demographic form was to collect descriptive information about the participants, their families, and prior methods of treatment for OCD or other common conditions (e.g., anxiety, depression, behavior problems, family problems, or substance use). The demographic form consists of 10 items, with response modes including quasi-free response (ethnicity and medication history) and response selection (e.g., income level, parents' marital status, parents' employment status, outpatient treatment history). See Appendix C for a copy of the demographic form.

Child Behavior Checklist. The Child Behavior Checklist (CBCL; Achenbach, 1999; Achenbach et al., 2001) allows for parental rating of their child's problem behaviors and level of skill in specific functional areas. There are two versions of the CBCL: one assessing younger children (ages 1-1/2 to five years), and a second form -

ideal for the purposes of the current study - for ages six to eighteen years. The CBCL consists of 140 items with response choices of *Not True (as far as you know)* (0), *Very True* (1), or *Often True* (2), distributed across two sections: a 20-item competence survey; and 120 items assessing the presence and magnitude of various emotional and/or behavioral problems (e.g., aggression, anxiety, depression, attention, delinquency, social, somatic, thought, and withdrawal) at any time within the past six months. In addition to multiple DSM-oriented scales, the CBCL gives scores on three behavioral scales of interest: Externalizing; Internalizing; and Total Problems.

The CBCL is easy to administer, has good psychometric properties, and is thoroughly validated (Achenbach, 1991; Achenbach & Rescorla, 2001). While the 1991 version of the CBCL was updated in 2001, relatively minor changes were implemented, and high correlations between the versions suggest that they are clinically equivalent (Achenbach & Rescorla, 2001). In addition, the implementation in 2003 of DSM-oriented scales constructed from existing CBCL items resulted in a six-item anxiety-specific scale (Anxiety Problems) which, in tandem with the Anxious/Depressed scale, has shown strong correspondence with the DSM-IV and ICD-10 (Connor-Smith & Compas, 2003).

The combination of scales also displays excellent discriminative ability between children with anxiety disorders and control groups (e.g., Achenbach & Rescorla, 2001; Aschenbrand, Angelosante, & Kendall, 2005; Seligman, Ollendick, Langley, & Bechtoldt Baldacci, 2004), as well as strong agreement between syndrome scores and clinical diagnoses in an outpatient psychiatric sample (Kasius, Ferdinand, van den Berg, & Verhulst, 1997). For the purposes of the current study, scores for the Internalizing and Externalizing subscales were collected for each participant. Note that, for the current study, reliability as measured by Cronbach's alpha for the Internalizing (α=.90) and Externalizing (α=.92) subscales was excellent.

Academic Impact Inventory. As investigation of changes in student academic experiences due to chronic health conditions is not widely performed, empirically validated instruments specific to pediatric OCD are not available in the literature. Therefore, the academic attitude and pediatric OCD literature was investigated to determine key variables for assessment of academic impact.

Examples of these variables include changes (pre- to post-onset) in academic performance (i.e., course grades), homework completion (time to complete), and attendance patterns (days missed). Based upon the literature review, the researcher and a site-based clinical supervisor created a parental questionnaire to measure several constructs identified as key variables within the academic and pediatric OCD research (e.g., Baker & Maupin, 2009; Griffiths, Sharkey, & Furlong, 2009; Ledley & Pasupuleti, 2007; Piacentini, Bergman, Keller, & McCracken, 2003).

Because this measure purported to examine parental perceptions as to the impact of pediatric OCD upon their child's subjective experience with attending and participating in school, the preliminary version of the Academic Impact Inventory (AII) instrument was reviewed by a panel of experts specific to pediatric OCD. Specifically, samples of the instrument were disseminated to two licensed clinical psychologists, a pediatric psychiatrist, and two school psychologists.

The five reviewers were asked to provide feedback regarding the content and clarity of each questionnaire item, and to offer suggestions for adding or subtracting items. Feedback was received from four of the five reviewers (one school psychologist did not respond), and was reviewed by the researcher and his site-based clinical supervisor, with revisions to the instrument made as necessary. Revisions were made to items where respondent agreement for item relevance and/or clarity was below 75% (i.e., less than three of the four respondents).

For example, one such revision addressed the need for a method of translation for non-traditional grading scales, commonly used in Kindergarten (e.g., Superior, Acceptable, Needs Improvement), to the more traditional ‘A’ – ‘F’ grading scale. In this particular case, initial feedback suggested that translation keys be provided to assist the parents. However, it was quickly discovered that there were numerous variations of grading scales, and that providing multiple translation keys would significantly increase the instrument’s length and complexity. Therefore, the reviewers agreed that, upon completion of the instrument, the research team would ask the parent(s) as to whether or not the grading scales used for their child were ‘A’-‘F’, and whether or not they had any questions as to how such a scale should be translated.

The final version of the AII has 12 items assessing changes in the previously identified variables (e.g., academic performance, homework completion, and attendance patterns). Response modalities include menu-based selection (e.g., grade levels) and short answer (e.g., number of days missed, time to complete homework). In addition, the instrument has one item probing symptom cluster topology, an item querying basic medication history, and a comprehensive item prompting identification (and perceived effectiveness) of prior treatment history to address OCD symptomology (See Appendix D for a copy of the AII).

Children’s Yale-Brown Obsessive Compulsive Scale. The Children’s Yale Brown Obsessive-Compulsive Scale (CY-BOCS; Scahill et al., 1997) was designed to allow for clinician ratings of symptom severity in pediatric OCD, when administered as part of a semi-structured clinical interview during intake. The CY-BOCS has 10 items assessing the severity of specific obsessions and compulsions occurring within the week immediately prior to instrument administration. A 5-point scale is used for the CY-BOCS, with increasing response values indicating increasing severity of both obsessions and compulsions (e.g., time occupied with symptoms, symptom interference, associated distress, difficulty of resistance, and degree of perceived control).

The CY-BOCS is widely used in pediatric OCD research, exhibiting adequate treatment sensitivity (POTS, 2004; Storch, 2006; Storch et al., 2004). Internal consistency was good for the Obsession and Compulsion Severity Scores and Total Score (.80, .82, and .90, respectively), and interscale correlation coefficients were strong between the Total Score and both Obsession (*r*=.95) and Compulsion (*r*=.95) Severity Scores (Scahill et al., 1997; Storch et al., 2004). As such, the CY-BOCS is generally considered to be the gold standard for symptom description and diagnostic conceptualization of pediatric OCD. Note that, for the current study, reliability for the Obsessive (α=.75), Compulsive (α=.72), and Total (α=.81) severity scores was acceptable.

Child Obsessive-Compulsive Impact Scale. The Children’s OCD Impact Scale - Parent and Child versions (COIS-P, COIS-C, respectively; Piacentini & Jaffer, 1999) were designed to assess domain-specific impact of OCD symptoms upon child functioning. The Scales consist of 56 items (each scale), with response choices ranging from *Not at all* (1) to *Very Much* (4). The items assess deficits within school, home/family, social, and general functioning observed within the month immediately prior to instrument administration. Internal consistency was very good for both measures (Cronbach's α=.78 to .92), and both version displayed excellent (intraclass correlation coefficient = .81 to .89) test-retest reliability, as well as strong agreement with semi-structured interview assessment (Piacentini, Peris, Bergman, & Chang, 2007). For the purposes of the current study, the scores for general functioning were collected for each participant. Note that, for the current study, reliability for Parent (α=.95) and Child (α=.93) COIS General scores was excellent (See Appendix E for a copy of the COIS-C/P).

Children's Depression Inventory 2: Self-Report. The Children's Depression Inventory 2: Self-Report (CDI 2:SR; Kovacs, 2010) is a commonly used self-report scale designed to measure cognitive, emotional, and behavioral symptoms of depression in school-age children from seven to seventeen years of age. The CDI 2:SR consists of 28 items allowing three possible responses for each. The inventory provides a Total score, as well as four domain scores: Negative mood; Ineffectiveness; Interpersonal problems; and Negative self-esteem. Psychometric studies have demonstrated adequate internal consistency (Cronbach's α = .71 to .89), test-retest reliability (*r* = .74 to .83), and convergent and divergent validity (Kovacs, 1992). In addition, the CDI 2:SR is commonly utilized to gauge change from treatment. For the purposes of the current study, the Negative Self-Esteem scores were analyzed for each participant. Note that, for the current study, reliability of the Negative Self-Esteem scale score (α=.75) was adequate.

Multidimensional Anxiety Scale for Children. The purpose of the Multidimensional Anxiety Scale for Children (MASC; March et al., 1997) is to provide a self-report method for assessing a wide range of anxiety symptoms. The MASC consists of 39 items, rated on a four-point scale, ranging from zero to three (Never, Rarely, Sometimes, or Often true about me). The instrument provides scores on four main scales - three of which can be broken down further into subscales: Physical symptoms (Tense/Restless, Somatic/Autonomic); Social Anxiety (Humiliation/Rejection, Performance Fears); Harm avoidance (Perfectionism, Anxious Coping); and Separation/Panic. In addition to the main- and sub-scales, a Total score is provided, as well as an Anxiety Disorder Index (ADI) score, designed for easy identification of respondents who may meet diagnostic criteria for an anxiety disorder. The MASC demonstrates strong internal consistency (Cronbach's α=.90), and acceptable test-retest reliability and adequate construct validity characteristics (March et al., 1997, 1999; Rynn et al., 2006). For the purposes of the current study, the ADI scores were analyzed for each participant. Note that, for the current study, Anxiety Disorder Index scores (α=.69) were adequate.

Students' Life Satisfaction Scale. The Students' Life Satisfaction Scale (SLSS; Huebner, 1991a) was designed to elicit the perceptions of children and adolescents as to global satisfaction with life. The SLSS consists of 7 items, with each using a 4-point scale. The scale ranges from 1 (*Never*) to 4 (*Always*), such that – after accounting for two reverse-scored items – higher scores indicate higher levels of life satisfaction. Internal consistency is generally strong (Cronbach's α = .82 to .85), with a test-retest reliability rating of r = .74 reported over a one- to two-week period (Huebner, 1991b). Note that, for the current study, reliability for the SLSS (α=.91) was excellent (See Appendix F for a copy of the SLSS).

Positive and Negative Affect Scale for Children. The Positive and Negative Affect Scale for Children (PANAS-C; Laurent et al., 1999) is a self-report scale designed to assess the extent to which positive and negative affect are experienced by respondents. The PANAS-C consists of 27 items, each of which is a single-word descriptor for a specific feeling or emotion (e.g., “Sad,” “Cheerful,” or “Lively”), along with a response scale that ranges from 1 (*Very slightly or not at all*) to 5 (*Extremely*), allowing respondents to report the degree to which they have encountered the state within the past few weeks. Internal consistency for the current study within the Positive (α=.88) and Negative (α=.91) Affect scales was excellent, and there was a strong negative relationship (r= –.44) between the two affect categories (see Appendix G for a copy of the PANAS-C).

Calculation of subjective well-being composite variable. Determination of SWB was accomplished via a formula incorporating scores from participant PANAS-C (e.g., Positive Affect, Negative Affect) and SLSS administrations. In consideration of previous research that has created and analyzed a composite SWB variable (Kasser & Sheldon, 2002; Sheldon, Kasser, Houser-Marko, Jones, & Turban, 2005; Suldo & Shaffer, 2008), raw mean scores for life satisfaction, positive affect, and negative affect were standardized in order to control for the fact that these measures have different response metrics and thus different raw ranges for values. These standardized scores were then used to calculate SWB as an aggregate value, in which standardized negative affect was subtracted from the sum of the standardized life satisfaction and positive affect variables.

Procedures

Participant recruitment. Upon their initial visit to the neuropsychiatric clinic, each family was requested to complete the clinic's demographic form as part of the normal intake procedure. Once this form was completed and returned as part of the intake interview with the clinic's director, the director determined (via review of individual age, as well as symptom presentation and/or observed behaviors during the interview) whether or not the youth should be approached for recruitment into the current study. If the decision was made to attempt recruitment, the researcher approached the youth and his/her parents at the beginning of their initial assessment and evaluation period.

At this point, the purpose of the study was explained to the parents, and informed consent sought from them. If this consent was obtained, then assent was subsequently sought from the youth. Once informed consent and youth assent were obtained, the researcher initiated data collection with the new participants.

Ethical considerations. Given the research-based focus of the current study's setting, precautions were taken to minimize the potential for unethical conduct during the course of recruitment and data collection. For example, the current study is one of many in which families may participate at the Rothman Center, and it was particularly important to clarify the idea of voluntary participation. That is to say, when approaching families for recruitment, it was necessary to explicitly state that the choice to participate (or not) in this study in no way altered the family's access to, or quality of, treatment.

Furthermore, the current study's principal investigator working as a student therapist presented the potential for a "dual role," in which families who were approached for recruitment in the current study could later encounter their recruiter in the role of therapist. The danger here lies in the family's possible perception of coercion to participate in the current study, to avoid feelings of guilt or awkwardness when therapeutic services are provided. For this reason, multiple research personnel were designated to seek informed consent/assent from potential participants, and at no time was the person recruiting a particular family later assigned as the therapist providing services to that family.

Data collection and data entry. Following completion of informed consent and assent procedures, the researcher distributed youth and parent data packets to the participants for completion. The total time necessary to complete all measures was approximately 60-75 minutes; however, it should be noted that the demographic form was already completed as part of general clinic intake, and the semi-structured interview assessment (CY-BOCS) was also completed with all youth believed to meet diagnostic criteria for OCD, regardless of study participation. As such, the participants and parents were asked to complete the additional measures during the assessment and evaluation appointment, with the time burden unique to participants in the current study equal to approximately 30 minutes.

In order to account for the possibility of systematic effects on participant responses due to time limitations or respondent fatigue, the measures were counter-balanced. This control was achieved by rotating the order of measures within youth and parent packets, such that three different iterations of parent measures and five different iterations of youth measures were generated. In this manner, any participant response effects due to order and length of measures was minimized.

With respect to receipt or confirmation of diagnosis, data triangulation was used to provide a best estimate diagnosis procedure. As such, information from clinical observation, CY-BOCS cutoff scores, and rating scale responses relevant to specific symptoms and associated impairment was included during a round-table discussion among medical faculty at the Rothman Center (i.e., three licensed clinical psychologists and a pediatric psychiatrist). The overarching goal of such discussion was to ensure that all diagnostic criteria were met prior to establishing a diagnosis of OCD, and that any existing OCD diagnosis remained accurate and appropriate. Note that, in addition to diagnostic consideration of OCD, diagnostic status with respect to comorbid conditions was collected. Although these data were not used for data analysis, the information allowed for a clearer understanding of the resulting sample.

The principal investigator or research assistants were available during administration to attend to questions from participants. After completion of packets, a member of the research team briefly scanned each measure to ensure all items were completed. If necessary, participants were asked to complete appropriate items.

The author de-identified participant packets, and assigned each participating family a unique identification number (e.g., “AC-IMP 027”) to ensure confidentiality was maintained for participant information and responses. The author was trained on the administration and scoring of all measures used in the current study by the Director of the Rothman Center as part of an advanced practicum. In addition, the author conducted training for all research assistants to ensure competence in scoring of all measures. All measures were scored by hand, with a randomly selected 10% of scored packets and audio-taped CY-BOCS administrations checked for scoring accuracy by a research assistant who did not originally score the selected packet(s). CY-BOCS inter-rater agreement (intraclass correlation coefficient) was calculated as .97.

The scores for each instrument were entered in a secured and password-protected Excel file by the author. This spreadsheet file was then the only data source used for data analyses. Data entry integrity was monitored by random selection of participant packets for “scoring checks.” A research assistant who did not originally score the selected packet(s) checked 10% of randomly selected participant packets for accuracy of data entry. When a data entry error was discovered, the adjacent participant records were also checked for data entry accuracy. Data entry integrity was calculated at 99%.

Analyses

Descriptive and inferential analyses were conducted to address each research question. For all questions, the individual participants were considered as the unit of analysis. The exploratory nature of the current study makes the development or adaptation of a theoretical model problematic. In theory, the variables being examined could serve as both a mediator and moderator (Judd et al., 2001). However, it is far more common to conceptualize variables as playing a mediating *or* moderating role in the relationship between predictor and outcome variables (in this case, diagnosis of pediatric OCD, and SWB).

For example, a moderating variable would interact with the presence of a diagnosis, and such interaction would measurably influence SWB. On the other hand, in the mediating role, a diagnosis of pediatric OCD would lead to the variable of interest, which would in turn impact SWB. In other words, without the variable being studied (e.g., symptom intensity, age, change in course grades), there *would be no relationship* between OCD diagnosis and SWB (Baron & Kenny, 1986).

For the purposes of the current study, the variables of interest were considered as moderating variables. The justification for this assumption lies mainly in the lack of existing evidence to support a necessary variable (e.g., Kenny, Kashy, & Bolger, 1998); that is, some variable ultimately responsible for the impact a chronic condition has upon a person's perceived happiness.

Research question one. What is the relationship between clinical characteristics of pediatric OCD and Subjective Well-Being (SWB) in school-age children and adolescents? To examine this relationship, the data used to identify clinical characteristics included calculated scores from participant CY-BOCS administrations (e.g., Total, Obsessions, and Compulsions scale scores); and determination of SWB via a formula incorporating scores from participant PANAS-C (e.g., Positive Affect, Negative Affect) and SLSS administrations. With respect to CY-BOCS scoring, it is informative to consider that, while a Total score of 16 on the CY-BOCS is considered to be a clinical cutoff for OCD diagnosis, there is not a minimum/maximum score required from either subscale (Obsessive or Compulsive). Inferential analyses included calculation of the Pearson product-moment correlation coefficient (PPMCC) between mean CY-BOCS scale scores and SWB scores.

Research question two. To what extent do factors related to pediatric OCD (i.e., symptom severity, intensity) moderate the relationship between clinical characteristics of pediatric OCD and SWB in school-age children and adolescents?

To investigate these effects, the data used for symptom-specific factors included calculated scores of the General scale from COIS-C and COIS-P, of the Negative self-esteem score from the CDI-SR, the Externalizing and Internalizing subscale scores from the CBCL, and the ADI score from the MASC.

Inferential analysis consisted of multiple regressions to examine moderator effects of the collected symptom-specific factors upon the previously defined relationship between clinical characteristics and SWB. Specifically, six models were used in order to investigate the moderating effect each of the various symptom-specific variables may have had upon the relationship between clinical characteristics and SWB.

Research question three. To what extent does SWB moderate the relationship between clinical characteristics of pediatric OCD and academic (i.e., course grades, attendance, homework patterns) and general functioning in school-age children and adolescents? To investigate these effects, the data used for academic functioning included calculated scores from parent responses to constituent items of the AII (e.g., Academic performance, Homework completion time, Attendance) instrument, as well as General scores from the COIS-C and COIS-P.

Specifically, items 4 and 5 from the AII (see Appendix D) place academic performance on a 9-point scale, which was reverse-scored. Perceived academic performance after symptom onset (Item 5) was subtracted from parents' recall of academic performance prior to symptom onset (Item 4) to yield a quantitative value, "AII Performance", signifying differences in academic performance across symptom onset. Similarly, items 6 and 7 from the AC-IMP assess the average amount of time allocated nightly for completion of assigned schoolwork. As such, subtraction of post-onset time

(Item 7) from parents' remembered pre-onset time (Item 6) yields a value, "AII Homework", signifying differences in time necessary to complete homework across symptom onset. Last, items 8a and 9a from the AII tap the average number of absences per month. Therefore, subtracting post-onset absences (Item 9a) from parents' recall of pre-onset absences (Item 8a) provides a value, "AII Attendance", signifying differences in attendance across symptom onset. Again, note that the data indicating clinical characteristics and SWB were the same as those calculated for Research Question One. Additional descriptive data include the means and standard deviations for relevant scores from the administered AII and COIS measures.

Inferential analyses consisted of multiple regressions to examine moderator effects of the collected academic and general functioning factors upon the relationship between clinical characteristics and SWB. Specifically, five models were used to investigate the moderating effect SWB may have had upon the relationship between each of the academic-related variables and clinical characteristics of OCD.

Research question four. To what extent do demographic factors (i.e., age, gender, SES) moderate the relationship between clinical characteristics of pediatric OCD, and SWB in school-age children? Investigation of these effects included factors from the clinic demographics form; again, note that the data indicating clinical characteristics and SWB were the same as those calculated for Research Question One. Additional descriptive data include the mean and/or modal responses for relevant scores from the administered clinic demographic forms.

Inferential analyses consisted of multiple regressions to examine moderator effects of the collected demographic factors upon the relationship between clinical characteristics and SWB. Specifically, three models were used to investigate the moderating effect each of the various demographic factors (age, gender, SES) may have had upon the previously defined relationship between clinical characteristics of OCD and SWB.

Chapter 4:

Results

This study sought to understand the relationships between clinical characteristics of OCD and Subjective Well Being (SWB), as well as how various factors related to symptoms, demographics, and attitudes impact these relationships. This chapter provides an overview of the overall sample characteristics, as well as the results of the data analyses selected to answer each research question.

Overview of Sample

Basic demographic information for the sample appears in Table 3. The current study's sample included responses from 65 youth, ranging in age from 7-17 years (*M*=11.88, *SD*= 2.89 years). Of these youth, 33.8% (*n*=22) were female, and the majority (84.8%, *n*=56) were Caucasian. Other participant ethnicities included non-White Hispanic (7.6%, *n*=5), African-American (4.5%, *n*=3), and two individuals (3.1%) of multiple ethnicities. Roughly half of the sample (46.8%, *n*=29) reported annual family income greater than $100,000, with less than one-third (27.4%, *n*=17) reporting income levels at or below $51,000 per year.

With respect to clinical characteristics, nearly all of the sample (n=58; 89.2%) met the clinical cut-point (16) associated with the CY-BOCS Total Score, and some (i.e., non-zero) level of OCD-related impairment was endorsed by all participants and their reporting parents via the COIS-C/P. Additionally, roughly half of the sample (47.7%, n=31) provided clinically significant scores on wide-range internalizing behavior scores from the CBCL. Conversely, clinically significant scores for externalizing behavior were displayed by less than one-quarter of the sample (15.3%, n=10).

Table 3

Participant Demographic Information

Variable	*n*	Percentage
Gender		
0=Female	22	33.8
1=Male	43	66.2
SES[a]		
<$25,000	3	4.8
$25,000-$49,999	7	11.3
$50,000-$74,999	7	11.3
$75,000-$100,000	16	25.8
>$100,000	29	46.8

[a] SES is a five-point variable, ranging from "<$25,000" to ">$100,000" (1-5 increasing).

In the current sample, 46 of 65 participants (70.8%) met diagnostic criteria for disorders beyond the primary diagnosis of OCD, ranging from one to four such conditions. Table 4 displays the number of participants displaying comorbidity by specific conditions. Calculated SWB for the current study's sample had an observed range of –6.79 to 4.74, with the mean and standard deviation provided in Table 5. Given the nature of the SWB score as a representation of three separate though related constructs – Life Satisfaction (LS), Positive Affect (PA), and Negative Affect (NA) – the relationships between SWB and its parent constructs were examined. In the current sample, PA showed a strong positive association with LS (r= .62, ρ<.01) and a strong negative correlation with NA (r= –.84, ρ <.01).

Table 4

Representation of Sample Comorbidity by Specific Condition

Comorbid Condition	n	% of subsample
Anxiety Disorders	**24**	**52**
Generalized Anxiety	8	17.4
Separation Anxiety	6	13
Social Phobia	9	19.6
Specific Phobia	2	4.3
NOS[a]	1	2.2
Depressive Disorder	**8**	**17.4**
Major Depressive Disorder	5	10.9
NOS	3	6.5
Autism Spectrum Disorder (ASD)	**8**	**17.4**
Autistic Disorder	1	2.2
Asperger’s Disorder	4	8.7
Pervasive Developmental Disorder, NOS	3	6.5
Tic Disorders	**19**	**41.3**
Tourette’s Disorder	14	30.4
Transient Tic Disorder	5	10.9
Attention-Deficit/ Hyperactivity Disorder (ADHD)	**7**	**15.2**
Primarily Inattentive	1	2.2
Primarily Hyperactive	1	2.2
Combined	5	10.9
Disruptive Behavior Disorder	**7**	**15.2**
Oppositional-Defiant	5	10.9
NOS	2	4.3
Selective Mutism	**1**	**2.2**
Post-Traumatic Stress Disorder (PTSD)	**1**	**2.2**

[a] NOS – Not Otherwise Specified.

As expected, LS was negatively associated with NA ($r = -.67$, $\rho < .01$). As expected, the composite SWB variable evidenced a strong inverse correlation with Negative Affect ($r = -.84$, $\rho < .01$), and strong positive associations with Positive Affect ($r = .81$, $\rho < .01$) and Life Satisfaction ($r = .91$, $\rho < .01$). Examination of mean SWB ratings across genders revealed non-significant differences.

When analyzing academic impairment data, outliers were identified and removed from the homework completion and attendance variables. Specifically, two responses were removed from homework completion time reports, with provided average times of 1440 and 1600 minutes (24 hours and 27 hours, respectively) *per evening* being considered unlikely and/or representative of misunderstanding by the reporting parent (e.g., weekly times vs. nightly times). Upon removal of the outlying values, skewness and kurtosis of the homework variable were observed to decrease from 5.16 (skewness) and 26.85 (kurtosis) to 1.42 and 1.50, respectively. With respect to average monthly absences, four reports were removed which provided average monthly absences of 30 days. Although such reports are accurate in that the participating child was unable to attend school, it was considered likely that the significance of impairment observed in these instances was such that the children were not representative of the larger sample. This is reflected in the immediate and sizeable reduction in skewness values observed (from 6.17 to 3.18) when data from the outlying reports were removed. Listwise deletion was used, such that all data for these cases identified as outliers were removed from all subsequent analyses. In response to large observed positive kurtosis in the attendance variable (kurtosis=12.20), cube root data transformation was conducted, with the result that kurtosis was reduced to within acceptable values (1.78).

Roughly half of the sample (n=33; 50.8%) endorsed significant levels of academic impairment associated with symptom onset, defined as meeting one or more parent reporting criteria: decrease of one or more letter grades across symptom onset (n=17; 26.2%); increase of more than 30 minutes in average nightly time required to complete assigned homework (n=25; 38.5%) across symptom onset; and/or increase of more than 5 school days in average monthly absences from school (n=4; 6.2%).

Table 5

Correlation Matrix for Key Study Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. OCD[a] Obsessions	–												
2. OCD Compulsions	$.52^{**}$	–											
3. OCD Total	$.89^{**}$	$.85^{**}$	–										
4. Impairment[b] per Parent	$.46^{**}$	$.36^{**}$	$.48^{**}$	–									
5. Impairment per Child	$.39^{**}$	.22	$.36^{**}$	$.63^{**}$	–								
6. Narrow-band Anxiety[c]	$.31^{*}$	.10	.24	$.32^{*}$	$.47^{**}$	–							
7. Narrow-band Depression[d]	.22	.20	.24	.10	.09	.03	–						
8. Internalizing[e]	$.29^{*}$	.13	.25	$.39^{**}$	.20	$.47^{**}$	-.06	–					
9. Externalizing[f]	.10	.09	.11	.22	.20	.14	-.00	$.48^{**}$	–				
10. Change in grades[g]	-.12	-.14	-.16	$-.32^{*}$	$-.29^{*}$	-.25	-.07	-.05	-.12	–			
11. Change in HW time[h]	.21	.19	.24	.21	.09	.23	.22	.09	-.12	$-.40^{**}$	–		
12. Change in absences[i]	.08	.18	.15	$.36^{**}$	.06	.09	.15	.18	-.17	-.07	.10	–	
13. SWB[j]	$-.31^{*}$	-.06	-.22	$-.38^{**}$	$-.51^{**}$	$-.42^{**}$	-.11	$-.34^{*}$	.01	.23	-.23	-.09	–
n	62	62	62	58	61	62	60	62	60	62	56	58	57
M	11.03	12.39	23.42	69.10	52.92	10.34	2.95	15.58	9.72	-0.90	30.37	2.28	–0.06
SD	3.44	3.05	5.66	23.09	16.68	4.78	2.89	10.17	9.13	2.09	37.67	6.17	2.58
Range	0-17	5-19	5-34	39-133	30-97	2-22	0-8	0-45	0-35	–7-5	0-150	–1-30	–6.79-4.74
Skewness	–1.44	–0.49	–0.97	1.0	0.70	0.38	0.71	0.69	1.12	–0.74	1.42	3.75	–0.79
Kurtosis	3.24	0.23	1.16	0.92	-0.16	-0.32	-1.02	-0.20	0.54	2.32	1.50	1.78	0.17

[a]OCD Scale scores come from the CY-BOCS – Children's Yale-Brown Obsessive Compulsive Scales; [b]Impairment derived from COIS: Child Obsessive-Compulsive Impact Scale – Child/Parent Versions; [c]Narrow-Band Anxiety derived from MASC ADI: Multidimensional Anxiety Scale for Children, Anxiety Disorder Index, given as a raw score. [d]Narrow-Band Depression derived from CDI-2 Neg. s-e: Children's Depression Inventory Second Edition – Self-Report, Negative Self-Esteem, given as a raw score. [e]Internalizing behaviors via CBCL: Child Behavior Checklist, given as a raw score with clinical cutpoint of 16; [f]Externalizing behaviors via CBCL: Child Behavior Checklist, given as a raw score with clinical cutpoint of 19; [g]Changes in grades as rated by parent responses; [h]Changes in time to complete homework as rated by parent responses; [i]Changes in average monthly absences from school as rated by parent responses; SWB = Subjective Well-Being, a composite of Students' Life Satisfaction Scale (SLSS) and Positive and Negative Affect Scale for Children (PANAS-C).

* $\rho<.05$. ** $\rho<.01$.

Table 5 provides a correlation matrix of key study variables used for investigation of the research questions.

Research Questions

Research question one. What is the relationship between clinical characteristics of pediatric OCD and self-rated Subjective Well-Being (SWB) in school-age children and adolescents?

To examine this relationship, the data used to identify clinical characteristics include calculated scores from participants' CY-BOCS administrations (e.g., Obsessions, Compulsions, and Total scale scores), while SWB scores were calculated through integration of standardized parent variables Positive Affect (PA), Negative Affect (NA), and Life Satisfaction (LS) as described in the preceding section.

Table 6

Descriptive and Inferential Data for Behavior-SWB Relationship

Variable	1	2	3	4
1. OCD[a] Obsessions	–			
2. OCD Compulsions	$.52^{**}$	–		
3. OCD Total	$.89^{**}$	$.85^{**}$	–	
4. SWB[b]	$–.31^{*}$	–.06	–.22	–
n	62	62	62	57
M	11.03	12.39	23.42	–0.06
SD	3.44	3.05	5.66	2.58
Range	0-17	5-19	5-34	–6.79-4.74
Skewness	–1.44	–0.49	–0.97	–0.79
Kurtosis	3.24	0.23	1.16	0.17

[a] OCD Scale scores come from the CY-BOCS – Children's Yale-Brown Obsessive Compulsive Scales;
[b]SWB = Subjective Well-Being
* $\rho<.05$. ** $\rho<.01$.

To determine whether any relationships exist between the clinical characteristics of participants' OCD and their subjective ratings of well-being, Pearson product-moment correlation coefficients (PPMCC) were calculated between CY-BOCS scale scores and SWB scores. These results, which appear in Table 6, indicated that low to moderate negative relationships were observed between the scale scores, which reflect the presence and severity of obsessive thoughts and compulsive behaviors, and SWB scores (range *r* = –.06 Compulsion scale, to *r*= –.31 Obsession scale).

Research question two. To what extent do factors related to pediatric OCD (i.e., symptom severity, intensity) moderate the relationship between clinical characteristics of pediatric OCD and self-rated SWB in school-age children and adolescents?

Data for these effects included child- and parent-rated impairment as calculated from the COIS-C/P General scales, broad-band parent ratings of externalizing and internalizing behaviors from CBCL subscale scores, narrow-band depression ratings from the CDI-SR Negative self-esteem score, and narrow-band anxiety ratings from the MASC ADI score. Table 7 provides the descriptive data for relevant symptom-specific variables.

To determine whether or not any (or all) of the symptom-specific factors acted to moderate the relationship between clinical characteristics and SWB, multiple regressions were calculated using grand mean-centered values of each factor (Dalal & Zickar, 2012; Dedrick et al., 2009). Specifically, six models were selected to investigate the moderating effect of each such factor in turn, while controlling for participant (child) age, gender, and family income. Table 8 summarizes the results of multiple regressions for all symptom-specific variables.

Calculation of the coefficient of determination, R^2, was performed for each model to indicate the proportion of unique and shared variability explained by all variables in a given model. As shown in Table 9, Step 3 (main effect) R^2 values ranged from .27 to .49 (Externalizing behaviors, and Self-Esteem, respectively). Further, models incorporating child-rated impairment, self-esteem, and anxiety exhibited statistically significant changes in R^2, indicating that these models each accounted for a proportion of variance in SWB greater than zero. However, Step 4 (interaction) R^2 values, although displaying a similar range, failed to achieve values statistically greater than zero,

Table 7

Descriptive and Inferential Data for Symptom-specific Effects

Variable	1	2	3	4	5	6
1. Child-rated Impairment[a]	–					
2. Parent-rated Impairment	.63**	–				
3. Self-Esteem[b]	.09	.10	–			
4. Externalizing behaviors[c]	.20	.22	–.00	–		
5. Internalizing behaviors[d]	.20	.39**	–.06	.48**	–	
6. Anxiety[e] (Narrow Band)	.47**	.32*	.03	.14	.47**	–
7. SWB[f]	–.50**	-.37**	–.35	–.04	–.34*	–.42**
n	61	58	60	60	62	57
M	52.92	69.10	2.95	9.72	15.58	–0.06
SD	16.68	23.09	2.89	9.13	10.17	2.58
Range	30–97	39–133	0–8	0–35	0–45	–6.79-4.74
Skewness	0.70	1.00	0.71	1.12	0.69	–0.79
Kurtosis	–0.16	0.92	–1.02	0.54	–0.20	0.17

[a] Impairment refers to constructs derived from COIS: Child Obsessive-Compulsive Impact Scale – Child/Parent Versions. [b] Self-Esteem derived from CDI-2 Neg. s-e: Children’s Depression Inventory Second Edition – Self-Report, Negative Self-Esteem, given as a raw score. [c] Externalizing behaviors via CBCL: Child Behavior Checklist, given as a raw score with clinical cutpoint of 19; [d] Internalizing behaviors via CBCL: Child Behavior Checklist, given as a raw score with clinical cutpoint of 16; [e] Narrow-Band Anxiety derived from MASC ADI: Multidimensional Anxiety Scale for Children, Anxiety Disorder Index, given as a raw score. [f] SWB: Subjective Well-Being.
* $\rho<.05$. ** $\rho<.01$.

Table 8

Multiple Regression Analysis of SWB as Moderated by Symptom Variables

	Model 1 (*n*=61)			Model 2 (*n*=58)			Model 3 (*n*=60)			Model 4 (*n*=62)			Model 5 (*n*=60)			Model 6 (*n*=62)		
	B	*SE*	*β*	*B*	*SE*	*β*	*B*	*SE*	*β*	*B*	*SE*	*β*	*B*	*SE*	*β*	*B*	*SE*	*β*
Age	-0.35	0.12	-0.38**	-0.35	.12	-0.38**	-0.25	0.13	-0.28	-0.38	0.12	-0.40**	-0.36	0.13	-0.39**	-0.35	0.12	-0.41**
Gender	0.54	0.75	0.10	0.64	0.74	0.12	0.46	0.74	0.09	0.49	0.75	0.09	0.57	0.79	0.10	0.25	0.71	0.05
Income	-0.44	0.32	-0.18	-0.46	0.31	-0.19	-0.44	0.33	-0.19	-0.48	0.32	-0.20	-0.44	0.32	-0.18	-0.30	0.30	-0.13
OCD^{a}	-0.14	0.06	-0.32*	-0.14	0.06	-0.32*	-0.13	0.06	-0.31*	-0.15	0.06	-0.34*	-0.14	0.06	-0.31*	-0.10	0.06	-0.24
Impairment^{b} (per Child)	-0.05	0.02	-0.35*															
Impairment (per Parent)				-0.02	0.02	-0.19												
Self-Esteem^{c}							-0.57	0.12	-0.57**									
Internalizing^{d}										-0.05	0.03	-0.19						
Externalizing^{e}													-0.01	0.04	-0.02			
Anxiety^{f}																-0.21	0.06	-0.44**
Interaction^{g}	-0.00	0.00	-0.24	0.00	0.00	0.40	-0.05	0.02	-1.14	-0.01	0.01	-0.80	0.00	0.01	0.03	-0.10	0.10	-0.13

[a] OCD clinical characteristics via CY-BOCS – Children's Yale-Brown Obsessive Compulsive Scales Total Score, with a clinical cutpoint of 16; [b]Impairment assessed via COIS: Child Obsessive-Compulsive Impact Scale – Child/Parent Versions.; [c]Self-Esteem derived from CDI-2 Neg. s-e: Children's Depression Inventory Second Edition – Self-Report, Negative Self-Esteem, given as a raw score. [d]Internalizing behaviors via CBCL: Child Behavior Checklist, given as a raw score with clinical cutpoint of 16; [e]Externalizing behaviors via CBCL: Child Behavior Checklist, given as a raw score with clinical cutpoint of 19; [f]Anxiety assessed via MASC ADI: Multidimensional Anxiety Scale for Children, Anxiety Disorder Index, given as a raw score; [g]Interaction provides data for interaction between CY-BOCS and applicable main effect variable; * ρ<.05, ** ρ<.01.

Table 9

Variance Partitioning for Multiple Regression Analysis of SWB as Moderated by Symptom Variables

	Dependent Variable = SWB											
	Model 1 Child-rated Impairment[e]		Model 2 Parent-rated Impairment		Model 3 Self-Esteem[f]		Model 4 Internalizing behaviors[g]		Model 5 Externalizing behaviors[h]		Model 6 Narrow-Band Anxiety[i]	
[n=51]	R^2	ΔR^2	R^2	ΔR^2	R^2	ΔR^2	R^2	ΔR^2	R^2	ΔR^2	R^2	ΔR^2
Step 1[a]	.18	.18*	.19	.19*	.13	.13	.20	.20*	.19	.19*	.19	.19*
Step 2[b]	.27	.09*	.28	.09*	.21	.08*	.30	.10*	.27	.08*	.24	.05
Step 3[c]	.37	.09*	.31	.02	.49	.28**	.33	.03	.27	.00	.42	.18**
Step 4[d]	.37	.00	.31	.00	.53	.04	.36	.03	.27	.00	.43	.01

[a]Step 1: Control variables (Age, Gender, Income) only; [b]Step 2: Control variables and CY-BOCS [Children's Yale-Brown Obsessive Compulsive Scales]; [c]Step 3: Control variables, CY-BOCS, and model-specific main effect variable; [d]Step 4: Control variables, CY-BOCS, model-specific main effect variable, and interaction (CY-BOCS x main effect); [e]Impairment assessed via COIS: Child Obsessive-Compulsive Impact Scale – Child/Parent Versions.; [f]Self-Esteem derived from CDI-2 Neg. s-e: Children's Depression Inventory Second Edition – Self-Report, Negative Self-Esteem, given as a raw score. [g]Internalizing behaviors via CBCL: Child Behavior Checklist, given as a raw score with clinical cutpoint of 16; [h]Externalizing behaviors via CBCL: Child Behavior Checklist, given as a raw score with clinical cutpoint of 19; [i]Anxiety assessed via MASC ADI: Multidimensional Anxiety Scale for Children, Anxiety Disorder Index, given as a raw score.

* $\rho<.05$, ** $\rho<.01$.

indicating that none of the symptom-related variables chosen were effective moderators of the relationship between OCD clinical characteristics and happiness.

Research question three. To what extent does self-rated SWB moderate the relationship between clinical characteristics of pediatric OCD and academic (i.e., course grades, attendance, homework patterns) and general functioning in school-age children and adolescents?

Data included calculated scores from parent responses to applicable items of the AII (e.g., Academic performance, Homework completion time, Attendance) instrument, as well as child- and parent-reported impairment associated with OCD from the COIS-C/P. Note that the data indicating clinical characteristics and SWB were identical to those used for Research Question One (see Table 6), while the impairment scores from the COIS-C/P were previously used for Research Question Two (see Table 7). Table 10 summarizes descriptive data for the academic-related variables: the change in academic performance, change in homework completion time, and change in average monthly absences.

To determine whether or not SWB moderated the relationship between clinical characteristics and any (or all) of the academic variables, multiple regressions were calculated using grand mean-centered values of each factor (Dalal & Zickar, 2012; Dedrick et al., 2009). Specifically, five models were selected to investigate the moderating effect of SWB upon each such factor in turn. Table 11 summarizes the results of multiple regressions for all academic-related variables.

Calculation of the Coefficient of Determination, R^2, was performed for each model to indicate the proportion of unique and shared variability explained by all variables in a given model. From Table 12, although the maximum Step 4 (Interaction effect) R^2 change value was .04 (Academic Performance), none of these values were sufficient to achieve statistical significance, indicating that SWB was not an effective moderator of the association between OCD clinical characteristics and academic impairment. However, Step 3 (main effect) R^2 change values ranged from .01 to .10 (Homework time and Child-rated impairment, respectively). The model for child-rated impairment was the only such model to exhibit statistically significant changes in R^2 for the academic variable main effect, indicating that SWB

Table 10

Descriptive and Inferential Data for Academic Variables

Variable	1	2	3	4	5	6
1. Academic Performance[a]	–					
2. Homework Time[b]	-.40**	–				
3. Attendance[c]	-.07	.10	–			
4. Child-rated Impairment[d]	-.29*	.09	.06	–		
5. Parent-rated Impairment	-.32*	.21	.36**	.63**	–	
6. SWB[e]	.23	-.23	-.09	-.51**	-.38**	–
n	62	56	58	61	58	57
M	–0.90	30.37	0.97	52.92	69.10	–0.06
SD	2.09	37.67	1.98	16.68	23.09	2.58
Range	–7-5	0–150	–1-11	30-97	39-133	–6.79-4.74
Skewness	–0.74	1.42	3.18	0.70	1.00	–0.79
Kurtosis	2.32	1.50	12.20	–0.16	0.92	0.17

[a] Changes in academic grades as rated by parent responses on AII: Academic Impact Inventory; [b] Changes in time to complete homework as rated by parent responses on AII; [c] Changes in average monthly absences from school as rated by parent responses on AII; [d] Impairment assessed via COIS: Child Obsessive-Compulsive Impact Scale – Child/Parent Versions; [e] SWB: Subjective Well-Being.
* $p<.05$, ** $p<.01$.

Table 11

Multiple Regression Analysis for Academic Variables as Moderated by SWB

	Model 1 (*n*=62) Academic Performance[a]			Model 2 (*n*=56) Homework Time[b]			Model 3 (*n*=58) Attendance[c]			Model 4 (*n*=61) Child-rated Impairment[d]			Model 5 (*n*=58) Parent-rated Impairment		
Variable	*B*	*SE*	*β*	*B*	*SE*	*β*	*B*	*SE*	*β*	*B*	*SE*	*β*	*B*	*SE*	*β*
Age	-0.07	0.10	-0.10	2.77	2.25	0.19	-0.06	0.08	-0.11	2.04	0.83	0.34^{*}	2.28	1.12	0.29^{*}
Gender	-0.77	0.62	-0.18	-0.50	13.02	-0.01	-0.11	0.48	-0.04	-5.20	5.02	-0.14	4.12	6.82	0.09
Income	0.29	0.26	0.16	-4.73	5.60	-0.13	-0.13	0.20	-0.10	-0.62	2.14	-0.04	0.15	2.90	0.01
OCD[e]	-0.06	0.06	-0.17	1.82	1.14	0.25	0.03	0.04	0.10	0.99	0.40	0.34^{*}	1.94	0.50	0.50^{**}
SWB[f]	0.15	0.13	0.21	-1.78	2.61	-0.12	-0.09	0.10	-0.16	-2.40	0.93	-0.37^{*}	-1.54	1.26	-0.18
Interaction[g]	-0.03	0.02	-0.94	-0.25	0.46	-0.42	0.00	0.02	0.11	-0.01	0.17	-0.04	0.04	0.22	0.10

[a] Changes in academic grades as rated by parent responses on AII: Academic Impact Inventory; [b]Changes in time to complete homework as rated by parent responses on AII; [c]Changes in average monthly absences from school as rated by parent responses on AII; [d]Impairment via COIS: Child Obsessive-Compulsive Impact Scale – Child/Parent Versions; [e]OCD clinical characteristics via CY-BOCS – Children's Yale-Brown Obsessive Compulsive Scales Total Score, with a clinical cutpoint of 16; [f]SWB: Subjective Well-Being; [g]Interaction between CY-BOCS and SWB.

$^{*}\ p<.05$ $^{**}\ p<.01$.

Table 12

Variance Partitioning for Multiple Regression Analysis of Academic Variables as Moderated by SWB

	Independent Variable = SWB									
	Model 1		Model 2		Model 3		Model 4		Model 5	
	Academic Performance[e]		Homework Time[f]		Attendance[g]		Child-rated Impairment[h]		Parent-rated Impairment	
[*n*=53]	R^2	ΔR^2	R^2	ΔR^2	R^2	ΔR^2	R^2	ΔR^2	R^2	ΔR^2
Step 1[a]	.07	.07	.05	.05	.03	.03	.12	.12	.10	.10
Step 2[b]	.10	.03	.10	.06	.04	.01	.22	.10*	.32	.22**
Step 3[c]	.13	.03	.12	.01	.05	.02	.32	.10*	.35	.02
Step 4[d]	.16	.04	.12	.01	.05	.00	.32	.00	.35	.00

[a] Step 1: Control variables (Age, Gender, Income) only; [b] Step 2: Control variables and CY-BOCS [Children's Yale-Brown Obsessive Compulsive Scales]; [c] Step 3: Control variables, CY-BOCS, and SWB [Subjective Well Being]; [d] Step 4: Control variables, CY-BOCS, SWB, and interaction (CY-BOCS x SWB); [e] Changes in academic grades as rated by parent responses on AII: Academic Impact Inventory; [f] Changes in time to complete homework as rated by parent responses on AII; [g] Changes in average monthly absences from school as rated by parent responses on AII; [h] Impairment via COIS: Child Obsessive-Compulsive Impact Scale – Child/Parent Versions.

* $p<.05$ ** $p<.01$.

accounted for a proportion of variance in child-rated impairment greater than zero.

Research question four. To what extent do demographic factors (i.e., age, gender, SES) moderate the relationship between clinical characteristics of pediatric OCD and SWB in school-age children?

Data included child age, gender, and family income scores from the clinic demographics form. Note that the data indicating clinical characteristics and SWB were identical to those calculated for Research Question One (see Table 6), and descriptive data for Age, Gender and Family income are discussed at the beginning of this chapter. To determine whether or not the demographic variables moderated the relationship between clinical characteristics and SWB, multiple regressions were calculated using grand mean-centered values of each factor (Dalal & Zickar, 2012; Dedrick et al., 2009). Specifically, three models were selected to investigate the moderating effect of each such factor in turn. Table 13 summarizes the results of multiple regressions for each of the demographic variables.

Calculation of the coefficient of determination, R^2, was performed for each model to indicate the proportion of unique and shared variability explained by all variables in a given model. From Table 14, the maximum Step 3 (interaction) R^2 value was .01 (Gender), with no values achieving statistical significance, suggesting none of the demographic variables were effective moderators of the association between OCD clinical characteristics and happiness. However, Step 2 (main effect) R^2 change values for family income and child age were statistically significant, indicating that these models accounted for a proportion of variance in happiness greater than zero.

Table 13

Multiple Regression Analysis of SWB as Moderated by Demographic Variables [n=57]

	Model 1			Model 2			Model 3		
Variable	*B*	*SE*	*β*	*B*	*SE*	*β*	*B*	*SE B*	*β*
OCD[a]	-0.10	0.06	-0.22	-0.10	0.06	-0.22	-0.13	0.06	-0.29*
Age	-0.34	0.11	-0.38**						
Gender[a]				0.21	0.76	0.04			
SES[b]							-0.76	0.33	-0.31*
Interaction	0.01	0.02	0.28	0.09	0.15	0.50	0.01	0.07	0.08

[a]OCD clinical characteristics via CY-BOCS – Children's Yale-Brown Obsessive Compulsive Scales Total Score, with a clinical cutpoint of 16; [b]Gender is a dummy variable with female serving as the reference group; [c]SES is a five-point variable, ranging from "<$25,000" to ">$100,000" (1-5 increasing).
*$\rho<.05$, * $\rho<.01$.

Table 14

Variance Partitioning for Multiple Regression Analysis of SWB as Moderated by Demographic Variables

	Dependent Variable = SWB					
	Model 1 [Age]		Model 2 [Gender[d]]		Model 3 [SES[e]]	
[n=57]	R^2	ΔR^2	R^2	ΔR^2	R^2	ΔR^2
Step 1[a]	.05	.05	.05	.05	.08	.08*
Step 2[b]	.20	.14**	.05	.00	.18	.09*
Step 3[c]	.20	.00	.06	.01	.18	.00

[a]Step 1: CY-BOCS [Children's Yale-Brown Obsessive Compulsive Scales] only; [b]Step 2: CY-BOCS and model-specific main effect variable; [c]Step 3: CY-BOCS, main effect variable, and interaction (CY-BOCS x main effect variable); [d]Gender is a dummy variable with female serving as the reference group. [e]SES is a five-point variable, ranging from "<$25,000" to ">$100,000" (1-5 increasing).
* $\rho<.05$ ** $\rho<.01$.

Chapter 5:

Discussion

This study examined the relationship between clinical characteristics of OCD and subjective well-being. The moderating potential of symptom-specific (e.g., severity, intensity), academic and general functioning (e.g., course grades, attendance, homework patterns), and demographic (e.g., age, gender, socioeconomic status) variables were assessed.

This chapter provides an interpretation and discussion of the results in six sections. The first section represents the study overview, the second offers conclusions and a discussion of results, the third section presents the strengths and limitations of the study, the fourth section provides future research recommendations, the fifth offers implications for practice, and the chapter concludes with a brief summary of this investigation.

Study Overview

Subjective well-being has been associated with a wealth of desirable outcomes, and even identified as a potential protective factor against engagement in risky behaviors such as suicidal ideation or substance abuse (Valois, Zullig, Huebner, & Drane, 2004; Zullig, Valois, Huebner, Oeltmann, & Drane, 2001). However, there is limited research as to the potential for a child's SWB to buffer against school-related impairment associated with a specific chronic health condition. Although some research indicates the potential for chronic health conditions to impair school-related functioning and performance in children and adolescents (e.g., Ledley & Pasupuleti, 2007; Piacentini et al., 2007), few studies examine the variables endemic to such conditions which may serve as protective factors with respect to academic, social and emotional impairment in school-aged populations. Therefore, this study was designed to examine the role of various symptom-specific factors in determining perceived academic, social, and emotional impairment associated with pediatric OCD, as well as to determine if subjective well-being moderates the school-related impairment attributed to pediatric OCD.

Interpretation and Discussion of Results

With respect to the descriptive data, it is of interest that the ratio of male to female participants approaches 2:1 (43 males, 22 females; ratio=1.95). Note that this is consistent with other studies of children with OCD, in which ratios during early childhood are reported to approximate 4:1, approaching unity in adolescence and adulthood (Stewart et al., 2004).

Research question one. What is the relationship between clinical characteristics of pediatric OCD and self-rated Subjective Well-Being (SWB) in school-age children and adolescents?

Results for relationships between subjective well-being and OCD clinical characteristics can be interpreted to indicate that those study participants presenting with increased levels of distressing obsessive thoughts experienced lower SWB, as compared with those participants presenting with fewer such thoughts. Additionally, the finding that SWB in school-aged youth is more strongly related to obsessive thoughts than to compulsive behaviors is important, particularly when considering assessment for prevention and early identification of chronic health conditions in school-based settings (Ledley & Pasupuleti, 2007; Piacentini et al., 2003; Piacentini et al., 2007; Ysseldyke et al., 2006). The layman's conceptualization of happiness is concentrated upon observed behaviors (e.g., smiling, laughing, relaxed demeanor), which has led to looking for the absence of such behaviors – or the occurrence of "unhappy" behaviors – in determining the presence of internalizing symptoms (e.g., anxiety, depression; Valderhaug & Ivarsson, 2005). A strength of the current study is the operationalization of well-being in a modern scientific manner, specifically as reflected by the presence of high life satisfaction and frequent positive mood states along with relatively low frequency of negative mood states. Using this definition, the current study suggests that among a clinical sample of youth with OCD, diminished SWB is more likely to manifest in youth with more severe obsessions, whereas severity of compulsive behavior may not impact SWB.

Research question two. To what extent do factors related to pediatric OCD (i.e., symptom severity, intensity) moderate the relationship between clinical characteristics of pediatric OCD and self-rated SWB in school-age children and adolescents?

As listed in the Results section, investigation using six multiple regression models failed to yield a statistically significant moderator variable for the relationship between CY-BOCS Total scores and SWB. Despite the lack of significant findings for this question, exploration of main effects yielded results of interest with respect to the utility of symptom-related variables as predictors of SWB among youth with OCD.

For example, the models incorporating child-reported anxiety, self-esteem, and impairment showed significant main effects, suggesting that such scores may predict levels of happiness among youth with OCD. This is in contrast to models incorporating parent-rated constructs (impairment, wide-band externalizing and internalizing ratings), which exhibited small and non-significant main effects, indicating the lack of predictive utility for such variables.

These findings are of considerable interest, although their consistency with existing research is difficult to judge. More specifically, the clinical nature of the sample obtained makes comparison to school studies problematic. However, the findings suggesting that parent-rated symptom reports are not related to child SWB ratings should perhaps not be surprising, given the use of parents as raters for wide-band symptom measures. Nevertheless, such findings are entirely compatible with the dual mental health model (Greenspoon & Saklofske, 2001; Keyes, 2002; Keyes, 2007; Seligman, 2005). Indeed, a predicating assumption of the positive psychology movement is a real and meaningful difference in what is being assessed between measures of psychopathology and measures of subjective well being. More specifically, much of the research to date supports the idea that children’s satisfaction with life provides a useful indicator of functioning and adjustment, independent of symptom presence and severity (Greenspoon & Saklofske, 2001; Suldo & Shaffer, 2008).

Of particular interest to the current study is the necessary restriction of range inherent to clinical populations. Put another way, it becomes appropriate to ask whether or not the above findings would be replicated in a non-clinical population, where symptom levels were sufficiently low that therapeutic assistance was not sought.

Replication of analyses across settings will be critical to a more complete understanding of the role that symptom intensity and severity play in the relationship between subjective happiness and clinical characteristics of OCD.

Research question three. To what extent does self-rated SWB moderate the relationship between clinical characteristics of pediatric OCD and academic (i.e., course grades, attendance, homework patterns) and general functioning in school-age children and adolescents?

Descriptive data suggested that parents attributed some level of academic-related impairment to their child’s OCD symptoms. More specifically, on average, academic performance was rated as declining the equivalent of one-half grade level from pre- to post-onset (*M*= –0.90, *SD*=2.09). Similarly, the average number of absences from school in a month was rated as increasing one day (*M*=0.97, *SD*=1.98 days). The average time necessary to complete homework, while greatly variable across families, was rated as increasing roughly 30 minutes (*M*=30.37, *SD*=37.67 minutes) per night. Of note, these findings are based on parent recall of their child’s behavior at an earlier point in time.

As shown in the Results section, five multiple regression models were used to investigate the potential for SWB to moderate the association between OCD clinical characteristics and various facets of academic impairment. Although no significant moderation was observed for the chosen academic impairment variables, closer examination of main effects provided indications of the potential for SWB to predict certain aspects of academic impairment among youth with OCD.

For example, the model predicting child-rated impairment showed a significant main effect, suggesting that SWB may predict associated child-rated levels of impairment among youth with OCD. It is of note that this model represents the only child-reported dependent variable; that is, all other academic impairment constructs (parent-rated impairment, academic performance, homework completion time, school absences) were reported by the parent, and none of these variables displayed significant main effects.

These findings are somewhat inconsistent with respect to existing research, the majority of which suggests that SWB is a significant predictor of patterns in various academic (Martin & Huebner, 2007; Suldo, Riley, & Shaffer, 2006) and school functioning variables (Michalos & Zumbo, 2002; Suldo & Huebner, 2006; Zullig, Valois, Huebner, & Drane, 2005). However, the context of the current study with respect to setting and reporting methods must be considered. Specifically, data for the current study were collected in an outpatient pediatric neuropsychiatric clinic, as opposed to previous samples recruited from school classrooms. In addition, as with the findings in the second research question, it is of interest to investigate the possible effect of shared method variance upon collected data. For example, the majority of school-based studies cited above made use of objective academic data (e.g., attendance records, homework completion logs, class grade sheets), while the current study increased the level of inference involved in the data collection process by utilizing subjective recall from parents to collect academic data. It is not difficult to imagine the effect that OCD-associated difficulties sufficient to result in help-seeking behaviors might have upon parental perception of changes in academic (and general) functioning across symptom onset. Again, replication of these analyses in varied settings (e.g., community mental health centers, schools, pediatricians' offices) is needed to further investigate the potential for SWB to be used as a screener for prevention and/or early intervention of academic impairment.

Research question four. To what extent do demographic factors (i.e., age, gender, socio-economic status) moderate the relationship between clinical characteristics of pediatric OCD and self-rated SWB in school-age children?

As shown in the Results section, three multiple regression models were used to investigate the potential for child age, gender, and family income to moderate the association between OCD clinical characteristics and subjective well being. No significant moderation was observed for the chosen demographic variables; however, closer examination of main effects provided indications of the potential for age and family income to predict subjective well-being among youth with OCD.

Interpretation of these findings is difficult, in that little to no research exists examining the relationship between SWB and age, gender, or income within a clinical population. Additionally, the findings are of varying consistency as compared with those from school-based research. For example, the small amount of research examining longitudinal trends in measures of mental health indicates a small negative relationship between age and SWB among non-clinical children and adolescents, with the resultant suggestion that SWB should decline between the ages of 12 and 18 (e.g., Keyes, 2002, 2005). The current study’s findings provide support for generalization of this phenomenon to clinical populations, in that younger children generally endorsed higher levels of subjective happiness than older participants, although the difference was not statistically significant. With respect to measures of family income, research to date with school-age populations consistently finds little to no relationship between SES and global life satisfaction (e.g., Gilman & Huebner, 2003), which is at odds with the current study's findings; however, given the overrepresentation of higher reported family income levels, it is difficult to ascertain the nature of the relationship observed in the current study. Replication across a more representative array of SES levels is necessary to clearly identify the relationship between family income and happiness.

Finally, given the previously discussed dynamic discrepancy in OCD prevalence between genders from early school-age youth to adolescence and adulthood (Flament et al., 1988; Zohar, 1999), it is perhaps not surprising to find that child gender accounted for a relatively small proportion of the observed variance in SWB.

Limitations and Considerations

Interpretation of the findings from the Results section should occur in the context of many important considerations. First, this study addressed its research questions via a correlational (i.e., non-experimental) design. As a result, any findings regarding relationships between various variables related to symptoms, academics, or demographics must be conceptualized as supporting or not supporting existing OCD and/or academic impact literature, rather than via the experimental paradigm in which a specific variable is conceptualized as "causing" an effect within dependent variables.

The second consideration impacting interpretation of study results is found within the traditional assessment and positive psychology literature bases. The few prior studies examining the impact of OCD upon school-based experiences (e.g., Adams, Waas, March, & Smith, 1994; Piacentini et al., 2003; Piacentini et al., 2007) suggest the level of psychopathology associated with the OCD diagnosis explains a limited amount of variance in subsequent school-related impairment. Similarly, those studies investigating the role of subjective well-being in academic functioning (e.g., Cowen, 1994; Park, 2004; Suldo & Shaffer, 2008) indicate the potential for subjective well-being to provide a protective, buffering effect against the presence of psychopathology.

The third point of importance in this section deals with the method of data collection. Data for this study came primarily from rating scales, which rely heavily upon subjective judgment and are therefore susceptible to bias. This bias may be exacerbated due to social desirability, defined as the respondents' perceptions as to the acceptability of their actual beliefs and/or experiences coloring their submitted responses. This effect is seen often in survey-based studies (Pallant, 2005), and was addressed through the use of data triangulation; that is, collecting similar data from multiple sources, including parent(s) and clinician.

In addition, the scarcity of research exemplars in this area lend little guidance as to expectations for variables that might predict greater or lesser academic, social, and emotional impairment within the realm of school-based experiences attributable to a specific chronic health condition. Thus, given that the data used for this study came from an outpatient neuropsychiatric clinic, and given that such data provide no more than a "snapshot" of the child's functioning, findings of this study should not be considered as final or conclusive; rather, these findings must be seen as preliminary, and any observed trends as formative or incremental in nature.

Another consideration is related to the sample size for the current study. Although OCD is one of the most commonly diagnosed mental health disorders (Kessler et al., 2005) the actual base rate – that is to say, the number of children and adolescents presenting to the current study's setting with OCD – is rather low. As a result, data collection for nearly one calendar year resulted in a final sample size of 65. The modest sample size acts to limit the type of statistical analyses that can feasibly be initiated. For example, post hoc power analysis suggests that in order to have an 80% chance of detecting the presence of a real effect at the .05 level of significance from any of the proposed variables, the observed R^2 would have to be at least .20.

Beyond its modest size, the nature of the sample presents a limitation as well. More specifically, recruitment within an outpatient neuropsychiatric clinic makes it possible that the participants will differ significantly from non-clinical populations (or even other clinical youth whose families have not yet sought treatment) in terms of certain variables (e.g., demographics, presenting concerns, symptom levels and topology, resources available), necessarily limiting the degree of applicability for this study's results to other areas (Tashakkori & Teddlie, 2003). However, the current study's setting has developed a positive reputation for treatment methods among other treatment providers, parent support groups, and various state-, school district-, and community-level referral agencies throughout the nation. As a result, participants in this study represent a wide variety of demographic variables, geographic locales, and symptom levels and topologies.

A final consideration is represented by the range of responses found among the sample. Given the current study's setting (i.e., an outpatient neuropsychiatric clinic), it is not unexpected to find that the parent and child survey response ranges were restricted; that is to say, the majority of instrument responses were above midpoint and/or association with clinical significance. As a result, generalization to other populations –

clinical or otherwise – requires an inordinate amount of caution to minimize the potential for error.

Recommendations for Future Research

As stated many times throughout this discussion, the correlational design used and the preliminary nature of the analyses conducted require that any attempt at interpretation can only be seen as a possible explanation of relationships, and not as a causal link between variables. However, there are some implications for further research that have been revealed during the course of this study.

The issue of response range restriction was of particular interest in the current study; specifically, the observation that while measure values averaged above the midpoint, the range on most instruments was not restricted to the extent expected from a clinical population. Given the "snapshot" nature of the current study, there was no opportunity to observe possible changes in these response patterns over the course of treatment, or to check the responses against what might be expected in a non-clinical population. Regardless of origin, there is interest in how these patterns might change with a more restrictive response range (whether higher or lower). Accordingly, the following research questions are recommended to further investigate this issue:

1. Is there a relationship between youth SWB and OCD symptom intensity and severity over time? For instance, does SWB decline following increases in symptom intensity?

2. Does youth SWB moderate child and parent responses regarding OCD-related impairment over time?

The second point of importance is the impact of SWB upon youth outcomes. The focus upon prevention and early intervention in schools is driven by the desire to improve academic and behavioral outcomes for students. Similarly, the push for evidence-based clinical treatment is driven by the desire to improve social, emotional, and behavioral outcomes for patients. Tying these issues to the points addressed within the current study, the following research questions are recommended:

3. Is there a relationship between youth SWB and motivation to seek treatment for chronic health conditions?

4. Does youth SWB moderate treatment outcomes (e.g., symptom and/or impairment reduction observed post-treatment) in youth with chronic health conditions?

5. Does SWB moderate youths' perceptions of impairment within the context of specific chronic health conditions?

6. Does youth SWB moderate psychotherapeutic and/or pharmacological treatment adherence (i.e., assigned homework, medication regimen) in youth with chronic health conditions?

Implications for Practice

Given the clinical setting for the current study, generalization of findings to non-clinical (i.e., school-based) settings is complex and requires caution. However, the current study's findings illuminate many issues critical to student assessment for prevention and early intervention, and indicate areas needing additional attention via educator professional development. These findings are of particular salience when considering the sweeping changes to our educational and healthcare systems across the nation, wherein such systems are expected to provide ever-increasing levels of service with ever-shrinking resources.

First, in terms of early identification of chronic health conditions for prevention and/or early intervention addressing academic impairment, the relationships observed between OCD clinical characteristics and subjective well being are illuminating. The statistically significant negative correlation between obsessive thoughts and SWB, particularly when juxtaposed against the negligible relationship of SWB to compulsive behaviors, supports the notion that assessment of child happiness may provide a wealth of information into early identification of mental health issues affecting academic performance and social relationships. Further, this information can be used to augment existing social, emotional, and behavioral measures utilized by schools. Note that these findings also support the rationale for clinical treatment to ameliorate obsessive thoughts, with the ultimate goal of maximizing quality of life. Although this point presupposes a causal relationship that cannot be addressed with the current study's design, the strong negative relationship between obsessive thoughts and SWB scores is deserving of further research.

With respect to educator professional development issues, the relationship between various clinical characteristics of OCD and SWB is again a key issue. Stereotypical educator perceptions of OCD typically consist of disruptive and/or "weird-looking" behaviors; overt and easily observable routines that place the youth as a behavioral outlier when compared to their peers, and offer convenient assessment clues. However, the data collected in this study are incongruent with this view, as the relationship between SWB and compulsive behaviors was negligible, suggesting the presence of said “weird-looking” behaviors are not necessarily indicative of problems requiring attention/intervention. Instead, the relationship of note with respect to clinical characteristics involved intrusive and/or distressing thoughts, which consist of internal, covert thought processes that elevate and/or intensify experienced anxiety. This description indicates a very different presentation than the above-referenced stereotype. The child plagued with continual, obsessive and distressing thoughts is a child distracted; a child who may frequently appear to “tune out” with no readily discernible precursor; a child who strongly and actively avoids specific activities or common routines (Ledley & Pasupuleti, 2007; Piacentini et al., 2007).

It is imperative that professional development efforts for educators include training in empirically-based techniques of identification and/or screening for anxiety disorders; that is to say, efforts at identification of anxiety disorders – specifically OCD – should attend to observed student distractibility and attention, particularly when co-occurring with distancing from and/or avoidance of situations and activities typically found enjoyable by developmentally matched peers. Further, techniques for promoting and increasing communication between parents, educators, and mental healthcare providers are needed. This is not a new realization (e.g., Shaw, 2003); however, school psychologists represent an ideal node for building such communicative networks between educational and healthcare systems, particularly when considering the training they receive in problem solving and collaborative consultation (Bradley-Klug et al., 2010). The need for such increases in communication is supported by the current study’s findings of the strong potential for academic impairment – in terms of decreased performance, increased difficulty with completion of homework, and worsening attendance patterns – associated with OCD symptoms.

Conclusion

The current study investigated the relationship between clinical characteristics of pediatric obsessive compulsive disorder (OCD) and subjective well-being (SWB) in a clinical population of school-age children and adolescents. Findings suggest a negative relationship between SWB and the intensity and severity of obsessive thoughts, but not compulsive thoughts. This suggests that assessment of SWB may help to generally predict the severity of obsessive thoughts experienced among youth with OCD, or be useful in monitoring potential changes in SWB in accordance with improvements (or worsening) in OCD symptoms. As no effective moderators were identified, interventions to enhance SWB may not serve to protect against OCD-related impairment. Interestingly, a general pattern with respect to data reporting source was observed; specifically, child-rated measures of symptom intensity and severity were associated with observed variance in ratings of subjective well-being. However, parent-rated measures of similar constructs fared poorly as predictors of this relationship. Similar findings were observed when investigating the potential of SWB as a predictor of various aspects of impairment in academic and general functioning. Finally, examination of various demographic variables suggested that average SWB was similar across gender, but was observed to decrease with increases in age and of family income.

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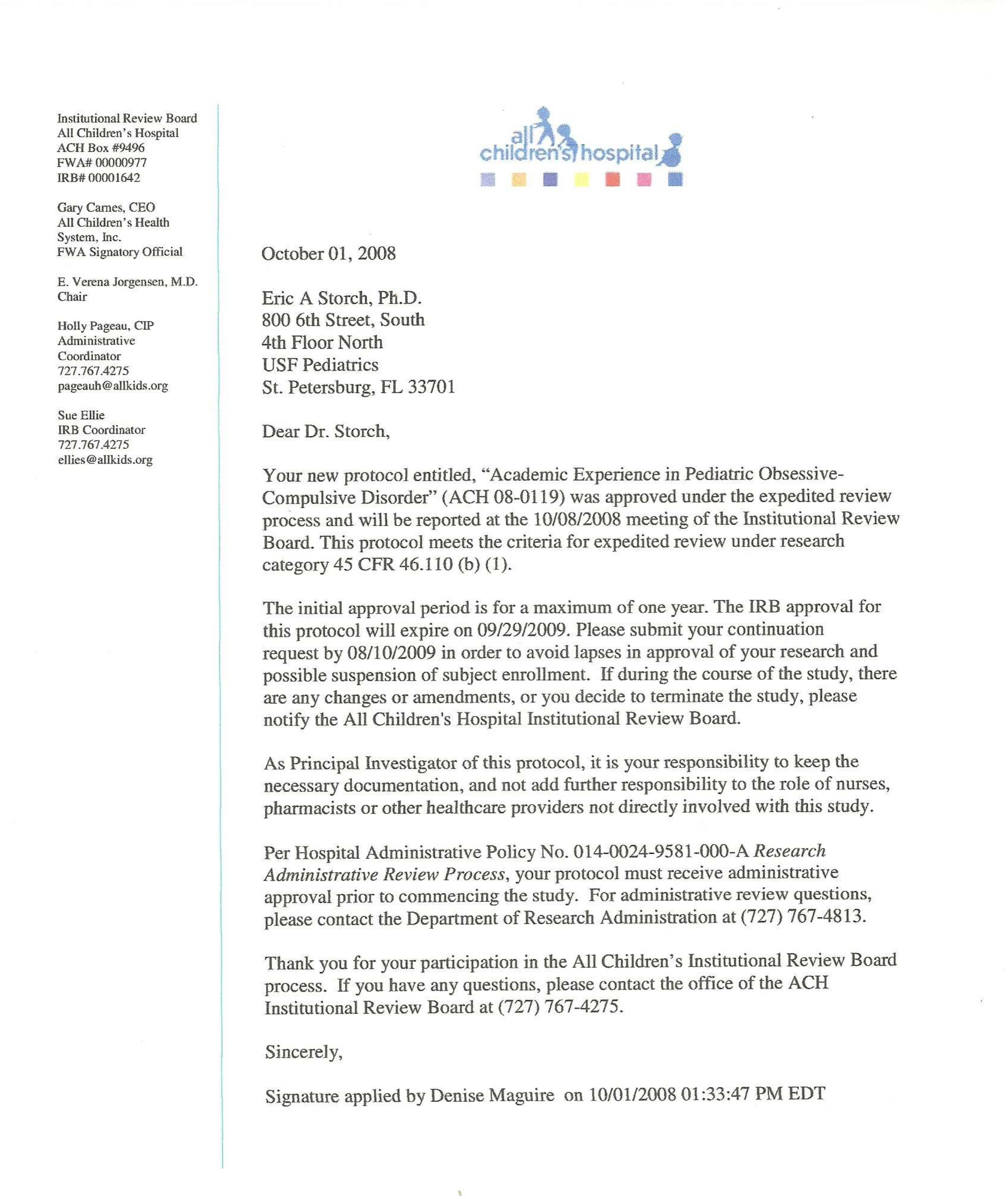
Appendices

Appendix A: Institutional Review Board Approval



Institutional Review Board
All Children's Hospital
ACH Box #9496
FWA# 00000977
IRB# 00001642

Gary Carnes, CEO
All Children's Health
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FWA Signatory Official

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October 01, 2008

Eric A Storch, Ph.D.
800 6th Street, South
4th Floor North
USF Pediatrics
St. Petersburg, FL 33701

Dear Dr. Storch,

Your new protocol entitled, "Academic Experience in Pediatric Obsessive-Compulsive Disorder" (ACH 08-0119) was approved under the expedited review process and will be reported at the 10/08/2008 meeting of the Institutional Review Board. This protocol meets the criteria for expedited review under research category 45 CFR 46.110 (b) (1).

The initial approval period is for a maximum of one year. The IRB approval for this protocol will expire on 09/29/2009. Please submit your continuation request by 08/10/2009 in order to avoid lapses in approval of your research and possible suspension of subject enrollment. If during the course of the study, there are any changes or amendments, or you decide to terminate the study, please notify the All Children's Hospital Institutional Review Board.

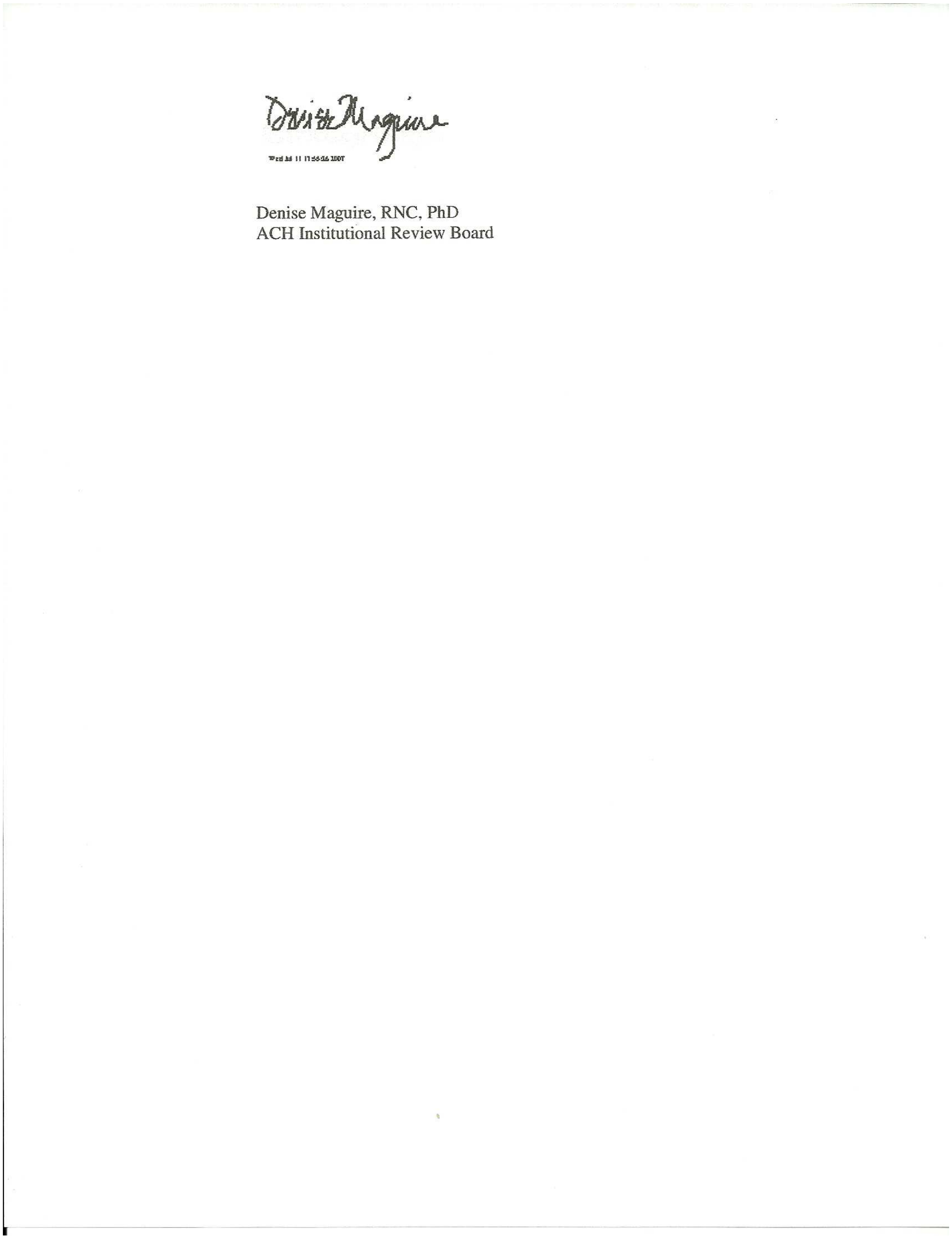
As Principal Investigator of this protocol, it is your responsibility to keep the necessary documentation, and not add further responsibility to the role of nurses, pharmacists or other healthcare providers not directly involved with this study.

Per Hospital Administrative Policy No. 014-0024-9581-000-A *Research Administrative Review Process*, your protocol must receive administrative approval prior to commencing the study. For administrative review questions, please contact the Department of Research Administration at (727) 767-4813.

Thank you for your participation in the All Children's Institutional Review Board process. If you have any questions, please contact the office of the ACH Institutional Review Board at (727) 767-4275.

Sincerely,

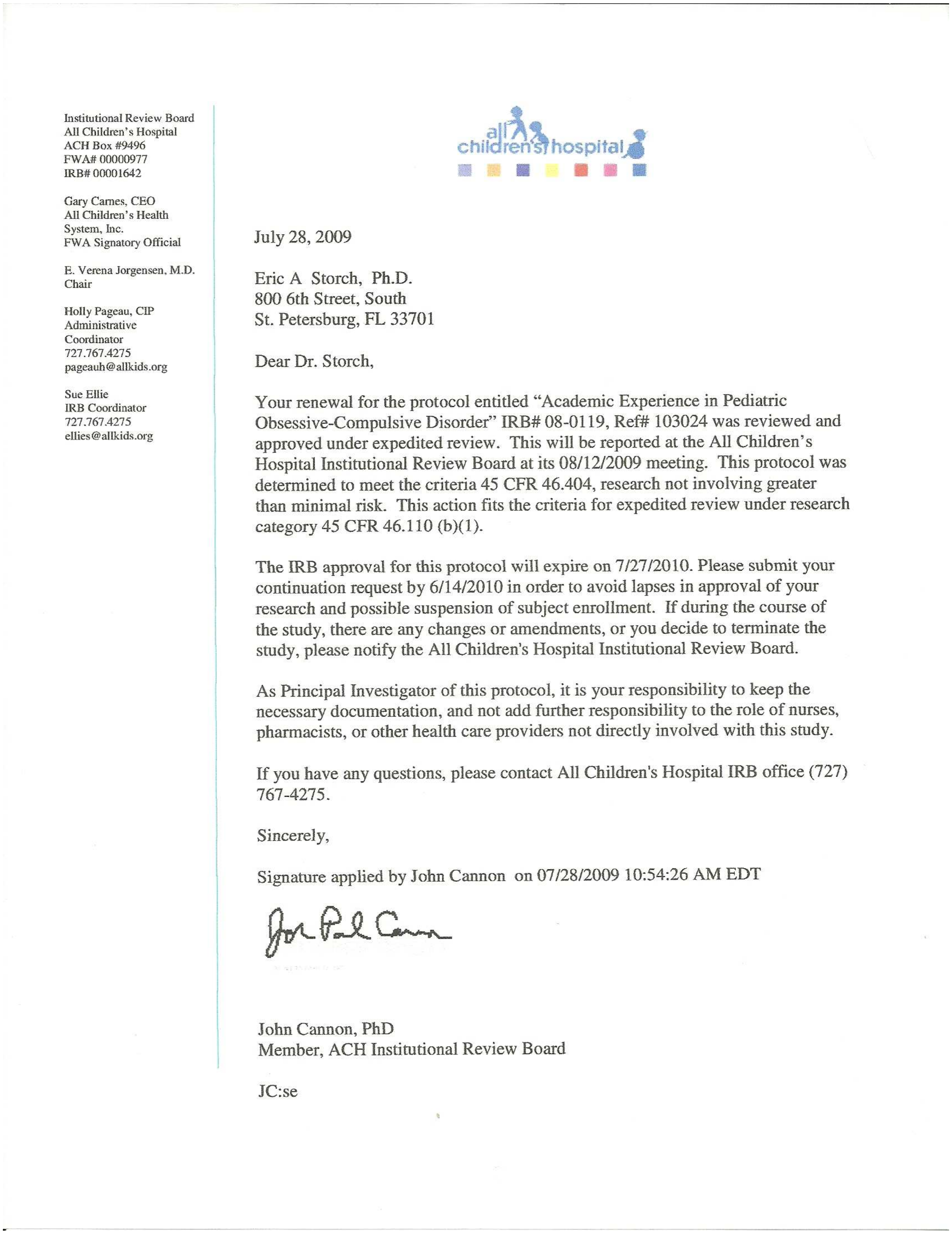
Signature applied by Denise Maguire on 10/01/2008 01:33:47 PM EDT



Denise Maguire

Wed Jul 11 17:56:26 2007

Denise Maguire, RNC, PhD
ACH Institutional Review Board



Institutional Review Board
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IRB# 00001642

Gary Carnes, CEO
All Children's Health
System, Inc.
FWA Signatory Official

E. Verena Jorgensen, M.D.
Chair

Holly Pageau, CIP
Administrative
Coordinator
727.767.4275
pageauh@allkids.org

Sue Ellie
IRB Coordinator
727.767.4275
ellies@allkids.org

all children's hospital

July 28, 2009

Eric A Storch, Ph.D.
800 6th Street, South
St. Petersburg, FL 33701

Dear Dr. Storch,

Your renewal for the protocol entitled "Academic Experience in Pediatric Obsessive-Compulsive Disorder" IRB# 08-0119, Ref# 103024 was reviewed and approved under expedited review. This will be reported at the All Children's Hospital Institutional Review Board at its 08/12/2009 meeting. This protocol was determined to meet the criteria 45 CFR 46.404, research not involving greater than minimal risk. This action fits the criteria for expedited review under research category 45 CFR 46.110 (b)(1).

The IRB approval for this protocol will expire on 7/27/2010. Please submit your continuation request by 6/14/2010 in order to avoid lapses in approval of your research and possible suspension of subject enrollment. If during the course of the study, there are any changes or amendments, or you decide to terminate the study, please notify the All Children's Hospital Institutional Review Board.

As Principal Investigator of this protocol, it is your responsibility to keep the necessary documentation, and not add further responsibility to the role of nurses, pharmacists, or other health care providers not directly involved with this study.

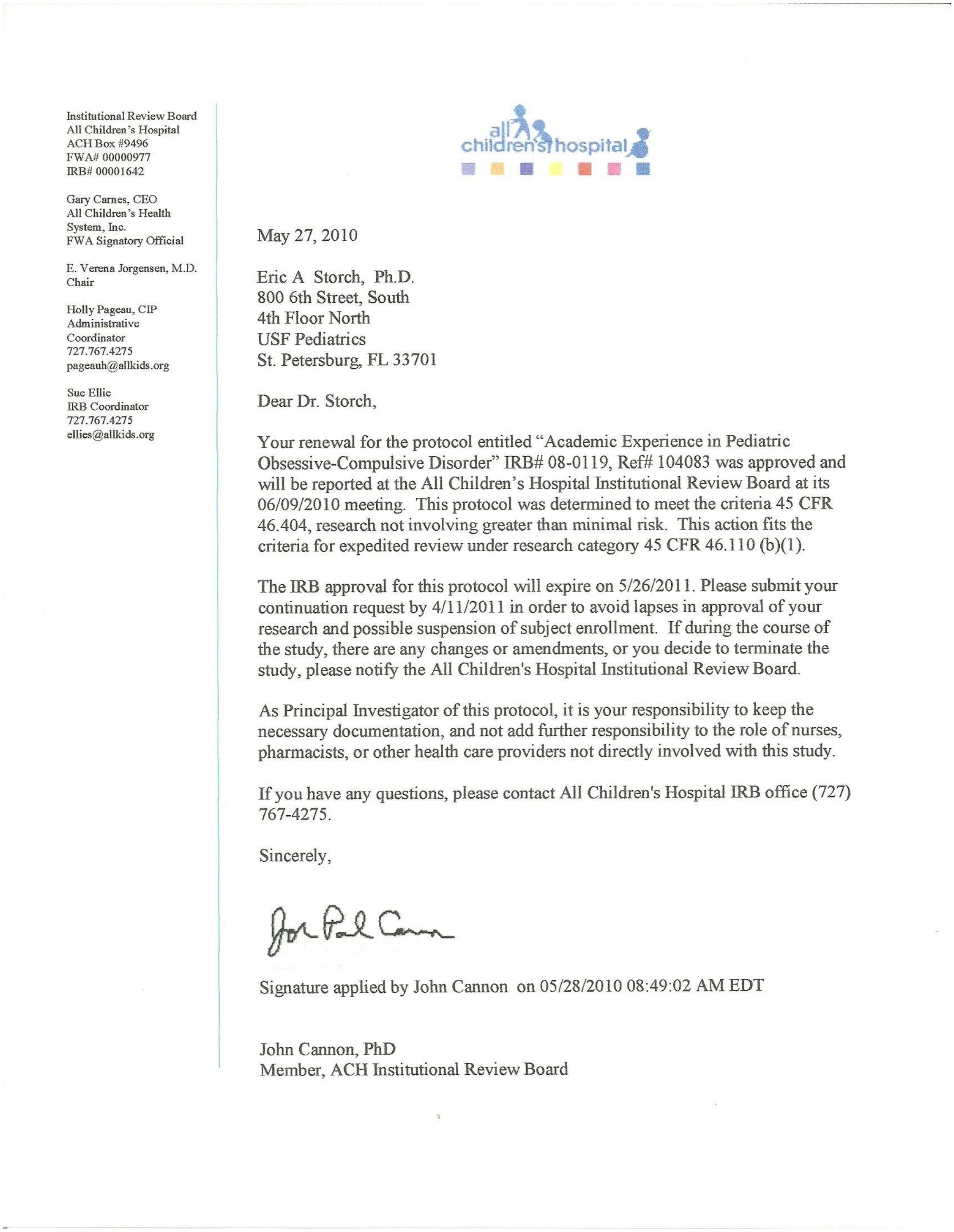
If you have any questions, please contact All Children's Hospital IRB office (727) 767-4275.

Sincerely,

Signature applied by John Cannon on 07/28/2009 10:54:26 AM EDT

John Cannon, PhD
Member, ACH Institutional Review Board

JC:se



Institutional Review Board
All Children's Hospital
ACH Box #9496
FWA# 00000977
IRB# 00001642

Gary Carnes, CEO
All Children's Health
System, Inc.
FWA Signatory Official

E. Verena Jorgensen, M.D.
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ellies@allkids.org

all children's hospital

May 27, 2010

Eric A Storch, Ph.D.
800 6th Street, South
4th Floor North
USF Pediatrics
St. Petersburg, FL 33701

Dear Dr. Storch,

Your renewal for the protocol entitled "Academic Experience in Pediatric Obsessive-Compulsive Disorder" IRB# 08-0119, Ref# 104083 was approved and will be reported at the All Children's Hospital Institutional Review Board at its 06/09/2010 meeting. This protocol was determined to meet the criteria 45 CFR 46.404, research not involving greater than minimal risk. This action fits the criteria for expedited review under research category 45 CFR 46.110 (b)(1).

The IRB approval for this protocol will expire on 5/26/2011. Please submit your continuation request by 4/11/2011 in order to avoid lapses in approval of your research and possible suspension of subject enrollment. If during the course of the study, there are any changes or amendments, or you decide to terminate the study, please notify the All Children's Hospital Institutional Review Board.

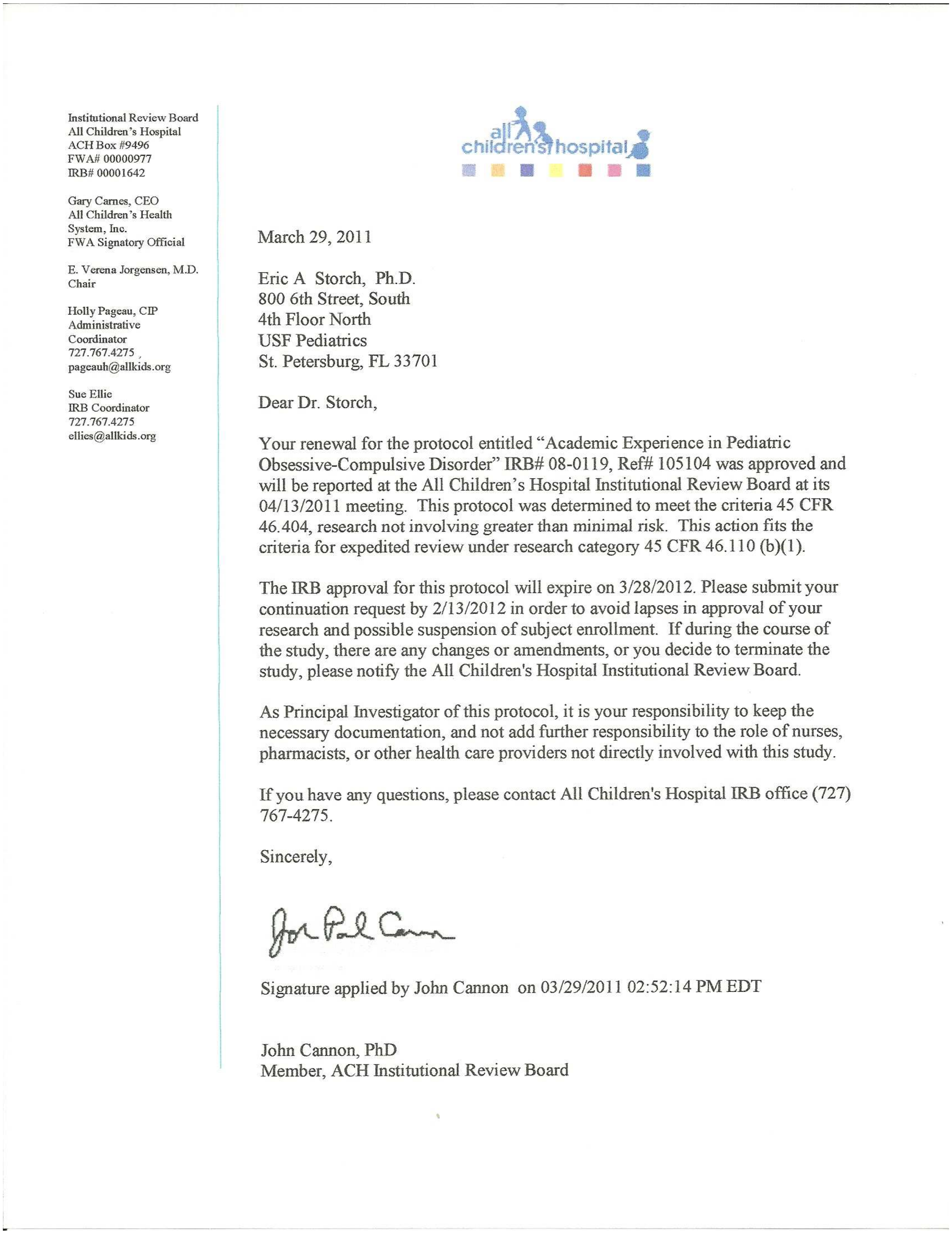
As Principal Investigator of this protocol, it is your responsibility to keep the necessary documentation, and not add further responsibility to the role of nurses, pharmacists, or other health care providers not directly involved with this study.

If you have any questions, please contact All Children's Hospital IRB office (727) 767-4275.

Sincerely,

Signature applied by John Cannon on 05/28/2010 08:49:02 AM EDT

John Cannon, PhD
Member, ACH Institutional Review Board



Institutional Review Board
All Children's Hospital
ACH Box #9496
FWA# 00000977
IRB# 00001642

Gary Carnes, CEO
All Children's Health
System, Inc.
FWA Signatory Official

E. Verena Jorgensen, M.D.
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all children's hospital

March 29, 2011

Eric A Storch, Ph.D.
800 6th Street, South
4th Floor North
USF Pediatrics
St. Petersburg, FL 33701

Dear Dr. Storch,

Your renewal for the protocol entitled "Academic Experience in Pediatric Obsessive-Compulsive Disorder" IRB# 08-0119, Ref# 105104 was approved and will be reported at the All Children's Hospital Institutional Review Board at its 04/13/2011 meeting. This protocol was determined to meet the criteria 45 CFR 46.404, research not involving greater than minimal risk. This action fits the criteria for expedited review under research category 45 CFR 46.110 (b)(1).

The IRB approval for this protocol will expire on 3/28/2012. Please submit your continuation request by 2/13/2012 in order to avoid lapses in approval of your research and possible suspension of subject enrollment. If during the course of the study, there are any changes or amendments, or you decide to terminate the study, please notify the All Children's Hospital Institutional Review Board.

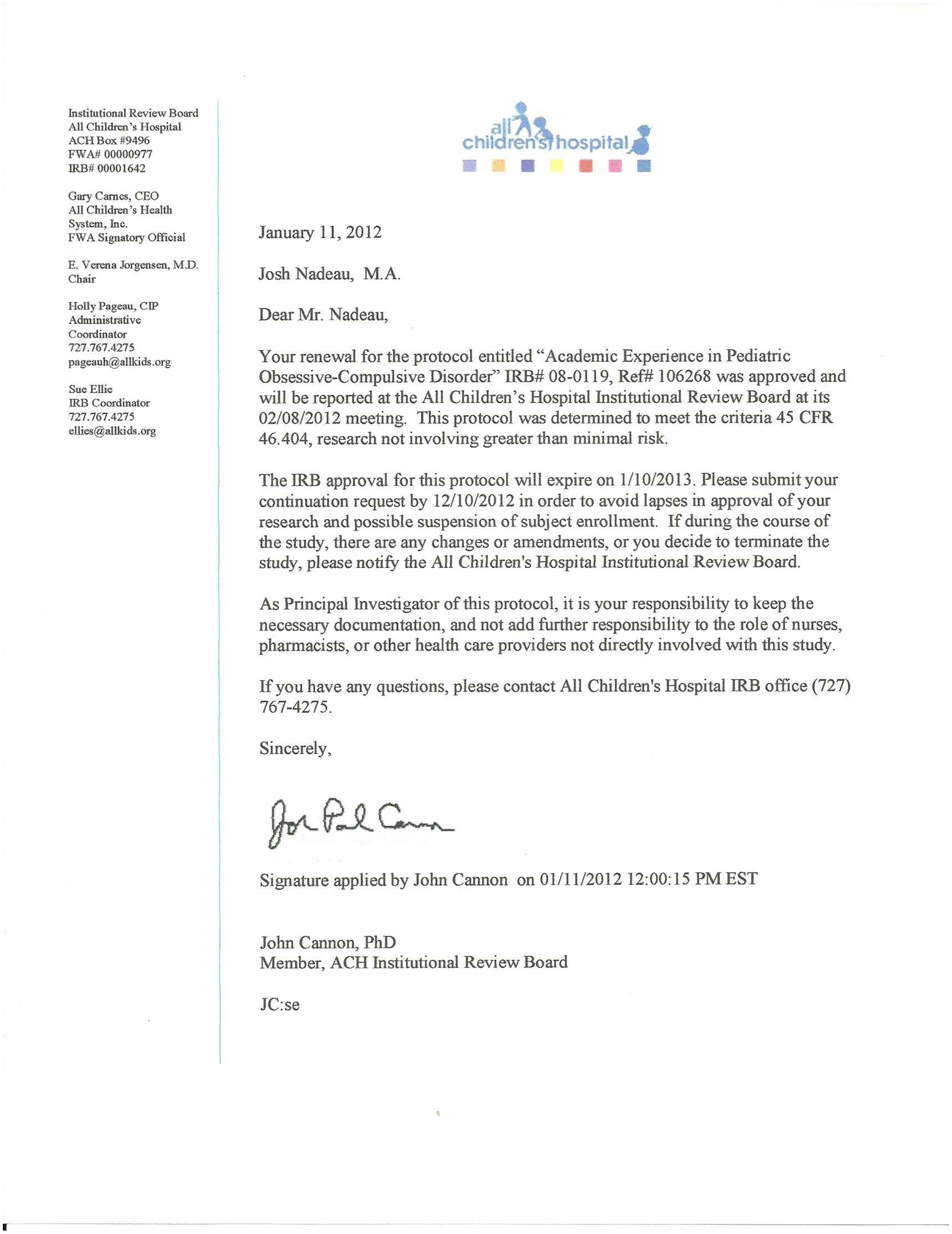
As Principal Investigator of this protocol, it is your responsibility to keep the necessary documentation, and not add further responsibility to the role of nurses, pharmacists, or other health care providers not directly involved with this study.

If you have any questions, please contact All Children's Hospital IRB office (727) 767-4275.

Sincerely,

Signature applied by John Cannon on 03/29/2011 02:52:14 PM EDT

John Cannon, PhD
Member, ACH Institutional Review Board



Institutional Review Board
All Children's Hospital
ACH Box #9496
FWA# 00000977
IRB# 00001642

Gary Carnes, CEO
All Children's Health
System, Inc.
FWA Signatory Official

E. Verena Jorgensen, M.D.
Chair

Holly Pageau, CIP
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pageauh@allkids.org

Sue Ellie
IRB Coordinator
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ellies@allkids.org

all children's hospital

January 11, 2012

Josh Nadeau, M.A.

Dear Mr. Nadeau,

Your renewal for the protocol entitled "Academic Experience in Pediatric Obsessive-Compulsive Disorder" IRB# 08-0119, Ref# 106268 was approved and will be reported at the All Children's Hospital Institutional Review Board at its 02/08/2012 meeting. This protocol was determined to meet the criteria 45 CFR 46.404, research not involving greater than minimal risk.

The IRB approval for this protocol will expire on 1/10/2013. Please submit your continuation request by 12/10/2012 in order to avoid lapses in approval of your research and possible suspension of subject enrollment. If during the course of the study, there are any changes or amendments, or you decide to terminate the study, please notify the All Children's Hospital Institutional Review Board.

As Principal Investigator of this protocol, it is your responsibility to keep the necessary documentation, and not add further responsibility to the role of nurses, pharmacists, or other health care providers not directly involved with this study.

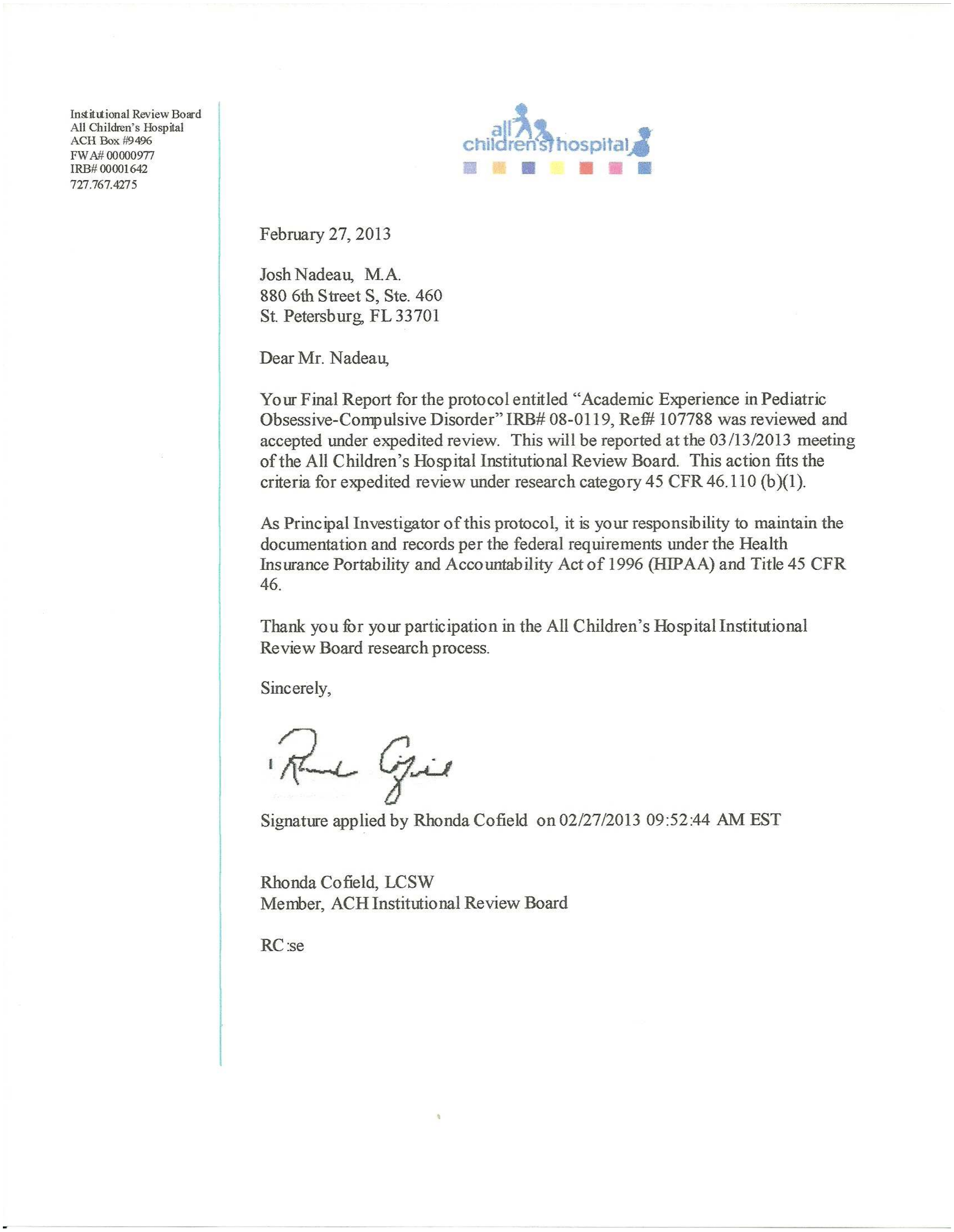
If you have any questions, please contact All Children's Hospital IRB office (727) 767-4275.

Sincerely,

Signature applied by John Cannon on 01/11/2012 12:00:15 PM EST

John Cannon, PhD
Member, ACH Institutional Review Board

JC:se



Institutional Review Board
All Children's Hospital
ACH Box #9496
FWA# 00000977
IRB# 00001642
727.767.4275

all children's hospital

February 27, 2013

Josh Nadeau, M.A.
880 6th Street S, Ste. 460
St. Petersburg, FL 33701

Dear Mr. Nadeau,

Your Final Report for the protocol entitled "Academic Experience in Pediatric Obsessive-Compulsive Disorder" IRB# 08-0119, Ref# 107788 was reviewed and accepted under expedited review. This will be reported at the 03/13/2013 meeting of the All Children's Hospital Institutional Review Board. This action fits the criteria for expedited review under research category 45 CFR 46.110 (b)(1).

As Principal Investigator of this protocol, it is your responsibility to maintain the documentation and records per the federal requirements under the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and Title 45 CFR 46.

Thank you for your participation in the All Children's Hospital Institutional Review Board research process.

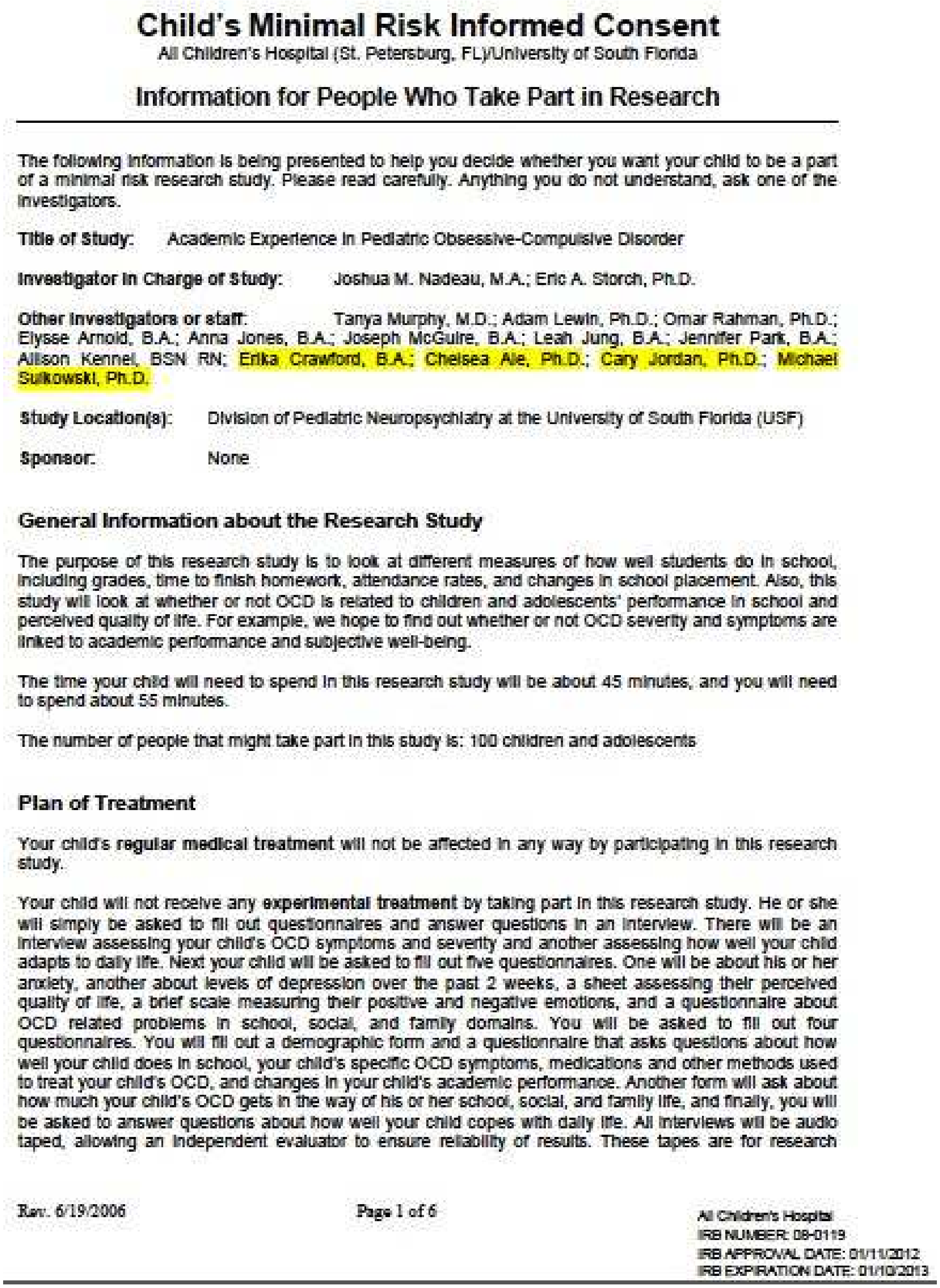
Sincerely,

Signature applied by Rhonda Cofield on 02/27/2013 09:52:44 AM EST

Rhonda Cofield, LCSW
Member, ACH Institutional Review Board

RC:se

Appendix B: Informed Consent



Child's Minimal Risk Informed Consent

All Children's Hospital (St. Petersburg, FL)/University of South Florida

Information for People Who Take Part in Research

The following information is being presented to help you decide whether you want your child to be a part of a minimal risk research study. Please read carefully. Anything you do not understand, ask one of the investigators.

Title of Study: Academic Experience in Pediatric Obsessive-Compulsive Disorder

Investigator in Charge of Study: Joshua M. Nadeau, M.A.; Eric A. Storch, Ph.D.

Other investigators or staff: Tanya Murphy, M.D.; Adam Lewin, Ph.D.; Omar Rahman, Ph.D.; Elysse Arnold, B.A.; Anna Jones, B.A.; Joseph McGuire, B.A.; Leah Jung, B.A.; Jennifer Park, B.A.; Allison Kennel, BSN RN; Erika Crawford, B.A.; Chelsea Ale, Ph.D.; Cary Jordan, Ph.D.; Michael Sulkowski, Ph.D.

Study Location(s): Division of Pediatric Neuropsychiatry at the University of South Florida (USF)

Sponsor: None

General Information about the Research Study

The purpose of this research study is to look at different measures of how well students do in school, including grades, time to finish homework, attendance rates, and changes in school placement. Also, this study will look at whether or not OCD is related to children and adolescents' performance in school and perceived quality of life. For example, we hope to find out whether or not OCD severity and symptoms are linked to academic performance and subjective well-being.

The time your child will need to spend in this research study will be about 45 minutes, and you will need to spend about 55 minutes.

The number of people that might take part in this study is: 100 children and adolescents

Plan of Treatment

Your child's **regular medical treatment** will not be affected in any way by participating in this research study.

Your child will not receive any **experimental treatment** by taking part in this research study. He or she will simply be asked to fill out questionnaires and answer questions in an interview. There will be an interview assessing your child's OCD symptoms and severity and another assessing how well your child adapts to daily life. Next your child will be asked to fill out five questionnaires. One will be about his or her anxiety, another about levels of depression over the past 2 weeks, a sheet assessing their perceived quality of life, a brief scale measuring their positive and negative emotions, and a questionnaire about OCD related problems in school, social, and family domains. You will be asked to fill out four questionnaires. You will fill out a demographic form and a questionnaire that asks questions about how well your child does in school, your child's specific OCD symptoms, medications and other methods used to treat your child's OCD, and changes in your child's academic performance. Another form will ask about how much your child's OCD gets in the way of his or her school, social, and family life, and finally, you will be asked to answer questions about how well your child copes with daily life. All interviews will be audio taped, allowing an independent evaluator to ensure reliability of results. These tapes are for research

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All Children's Hospital
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purposes only and will only be shared with research staff affiliated with this project who are identified on page 1 above. You or your child will not have access to these tapes. Tapes will be stored in a locked cabinet in the Division of Pediatric Neuropsychiatry and will be disposed of at the end of the study using a standard erasing device.

Benefits of Being a Part of this Research Study

There are no direct benefits to participating in this research.

Risks of Being a Part of this Research Study

Participants may experience mild discomfort from addressing potentially difficult topics through discussion and questionnaires. However, most people welcome the opportunity to discuss their experiences with a trained clinician.

In the instance of suicidality or perceived risk in a patient, standard protocol will be followed; this may include behavioral contracting with the family, hospitalization and/or more intensive psychological and pharmacological treatment. In the instance that inpatient hospitalization is necessary; we will refer the individual to the appropriate location for care in this matter. We will also refer the family to psychological services, as needed.

Alternatives to Being Part of this Research Study

An alternative to being part of this research study is to not participate.

In Case of Illness or Injury

Call one of the investigators listed on the first page in the event your child gets sick or injured while on this study. If your child has an emergency, go to the closest emergency room or clinic for treatment.

University of South Florida

In the event that your child sustains an injury or illness as a result of participating in this research, please be aware that medical treatment for the injuries or illness may not be available from the University of South Florida. The University of South Florida does not maintain an emergency department nor does it provide medical treatment in all disciplines of medicine. If your child becomes ill or sustains an injury which you believe is related to your child's participation in this research, immediately contact one of the persons listed on page 1, and if emergency care is needed seek emergency attention from your child's nearest local hospital.

If injury results from your child's participation in research, money damages are not automatically available. Money damages are only available to the extent specified in Florida Statute, 768.28. A copy of this Statute is available upon request to the Division of Compliance Services, USF. This statute provides that damages are available only to the extent that negligent conduct of a University employee caused your injuries, and are limited by law. If you believe your child is injured as a result of participation in this research and the negligent conduct of a University faculty member, you may notify the USF Self Insurance Programs Office at (813) 974-8008 who will investigate the matter.

All Children's Hospital

Your child may experience an adverse event from participation in this research study. Should this occur, contact the investigator immediately.

Should a serious adverse reaction occur while you are not a patient at All Children's Hospital, you should go to the emergency facility nearest you. If additional treatment is required, All Children's Hospital is available to provide pediatric care.

All Children's Hospital, Inc. will not provide compensation for injury, illness, or other loss resulting from participation in this study. For further information on this subject, please contact the Department of Risk Management of All Children's Hospital at 727-767-4287.

Confidentiality of Your Child's Records

Your child's privacy and research records will be kept confidential to the extent of the law.

USE AND DISCLOSURE OF YOUR CHILD'S MEDICAL INFORMATION

By signing this form, you are authorizing the use and disclosure of your child's health information collected in connection with your child's participation in this research study. Your child's information will only be used in accordance with the provisions of this consent form and applicable law.

Your child's health information related to this study, including, but not limited to medical information collected from the subject for this study and/or study questionnaires may be used or disclosed in connection with this research study. Study records that identify your child will be kept confidential as required by law. Except when required by law, your child will not be identified by name, SS#, address, phone #, or any other direct personal identifier in study records disclosed outside of the All Children's Hospital (ACH) institution. For records disclosed outside of ACH, your child will be assigned a unique code number. The key to the code will be kept in a locked file in Dr. Eric Storch's office.

Representatives of the following groups are authorized to use and/or disclose your child's health information in connection with this research study:

The principal investigator, Joshua Nadeau, M.A.
The co-principal investigator, Eric Storch, Ph.D.
The ACH Institutional Review Board
The ACH Human Subjects Protection Office
Co-investigator, Tanya Murphy, M.D.
Co-investigator, Adam Lewin, Ph.D.
Co-investigator, Omar Rahman, Ph.D.
Co-investigator, Elysse Arnold, B.A.
Co-investigator, Anna Jones, B.A.
Co-investigator, Joseph McGuire, M.S.
Co-investigator, Leah Jung, B.S.
Co-investigator, Jennifer Park, B.S.
Co-investigator, Allison Kennel, BSN RN
Research Staff, Erika Crawford, B.A.
Research Staff, Cary Jordan, Ph. D.
Research Staff, Chelsea Ale, Ph.D.
Research Staff, Michael Sulkowski, Ph.D.

The parties listed in the preceding paragraph may disclose your child's health information to the following persons and organizations for their use in connection with this research study:

The Office of Human Research Protections in the U.S.
Department of Health and Human Services

All Children's Hospital
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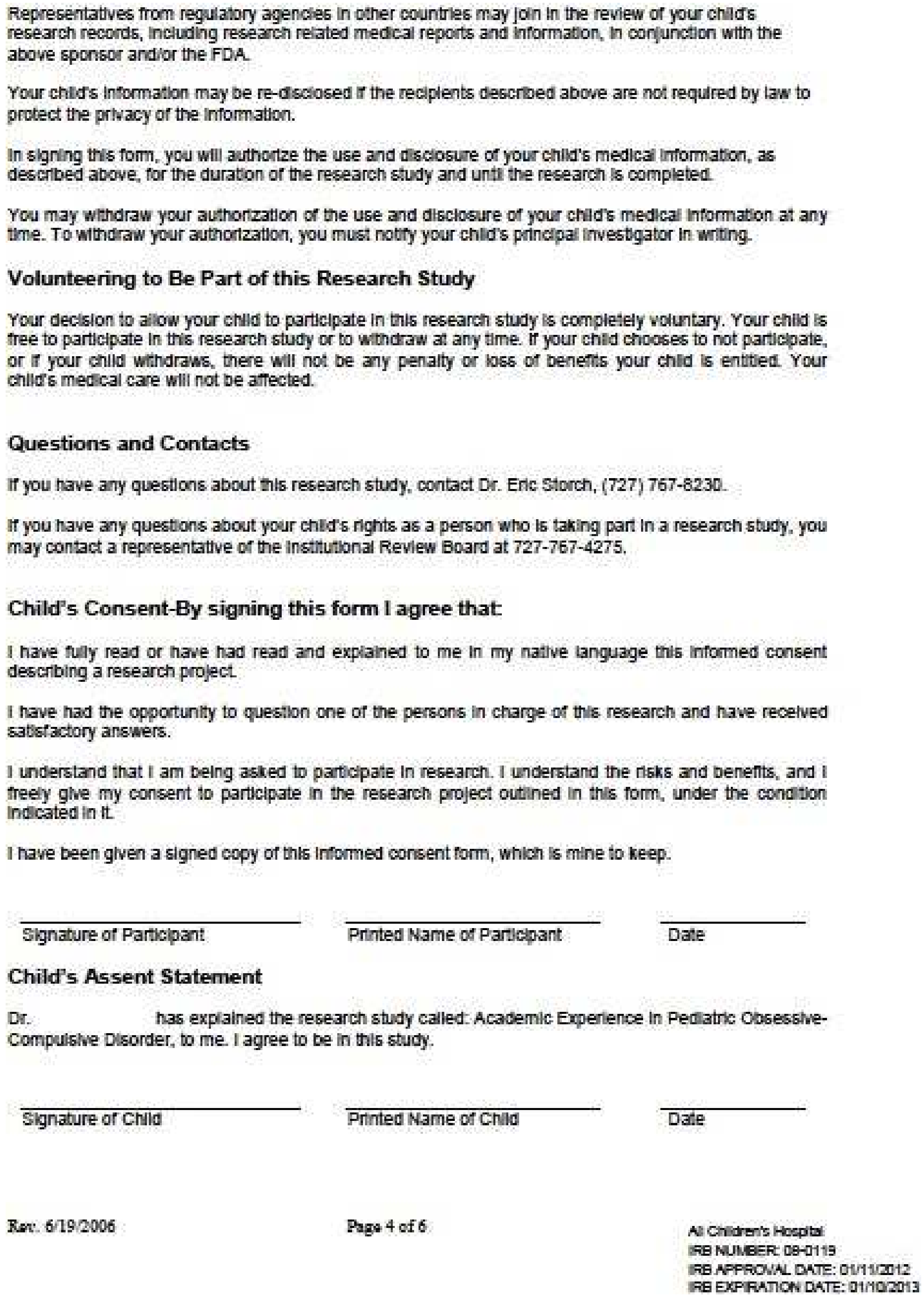

Representatives from regulatory agencies in other countries may join in the review of your child's research records, including research related medical reports and information, in conjunction with the above sponsor and/or the FDA.

Your child's information may be re-disclosed if the recipients described above are not required by law to protect the privacy of the information.

In signing this form, you will authorize the use and disclosure of your child's medical information, as described above, for the duration of the research study and until the research is completed.

You may withdraw your authorization of the use and disclosure of your child's medical information at any time. To withdraw your authorization, you must notify your child's principal investigator in writing.

Volunteering to Be Part of this Research Study

Your decision to allow your child to participate in this research study is completely voluntary. Your child is free to participate in this research study or to withdraw at any time. If your child chooses to not participate, or if your child withdraws, there will not be any penalty or loss of benefits your child is entitled. Your child's medical care will not be affected.

Questions and Contacts

If you have any questions about this research study, contact Dr. Eric Storch, (727) 767-8230.

If you have any questions about your child's rights as a person who is taking part in a research study, you may contact a representative of the Institutional Review Board at 727-767-4275.

Child's Consent-By signing this form I agree that:

I have fully read or have had read and explained to me in my native language this informed consent describing a research project.

I have had the opportunity to question one of the persons in charge of this research and have received satisfactory answers.

I understand that I am being asked to participate in research. I understand the risks and benefits, and I freely give my consent to participate in the research project outlined in this form, under the condition indicated in it.

I have been given a signed copy of this informed consent form, which is mine to keep.

Signature of Participant Printed Name of Participant Date

Child's Assent Statement

Dr. has explained the research study called: Academic Experience in Pediatric Obsessive-Compulsive Disorder, to me. I agree to be in this study.

Signature of Child Printed Name of Child Date

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All Children's Hospital
IRB NUMBER: 08-0119
IRB APPROVAL DATE: 01/11/2012
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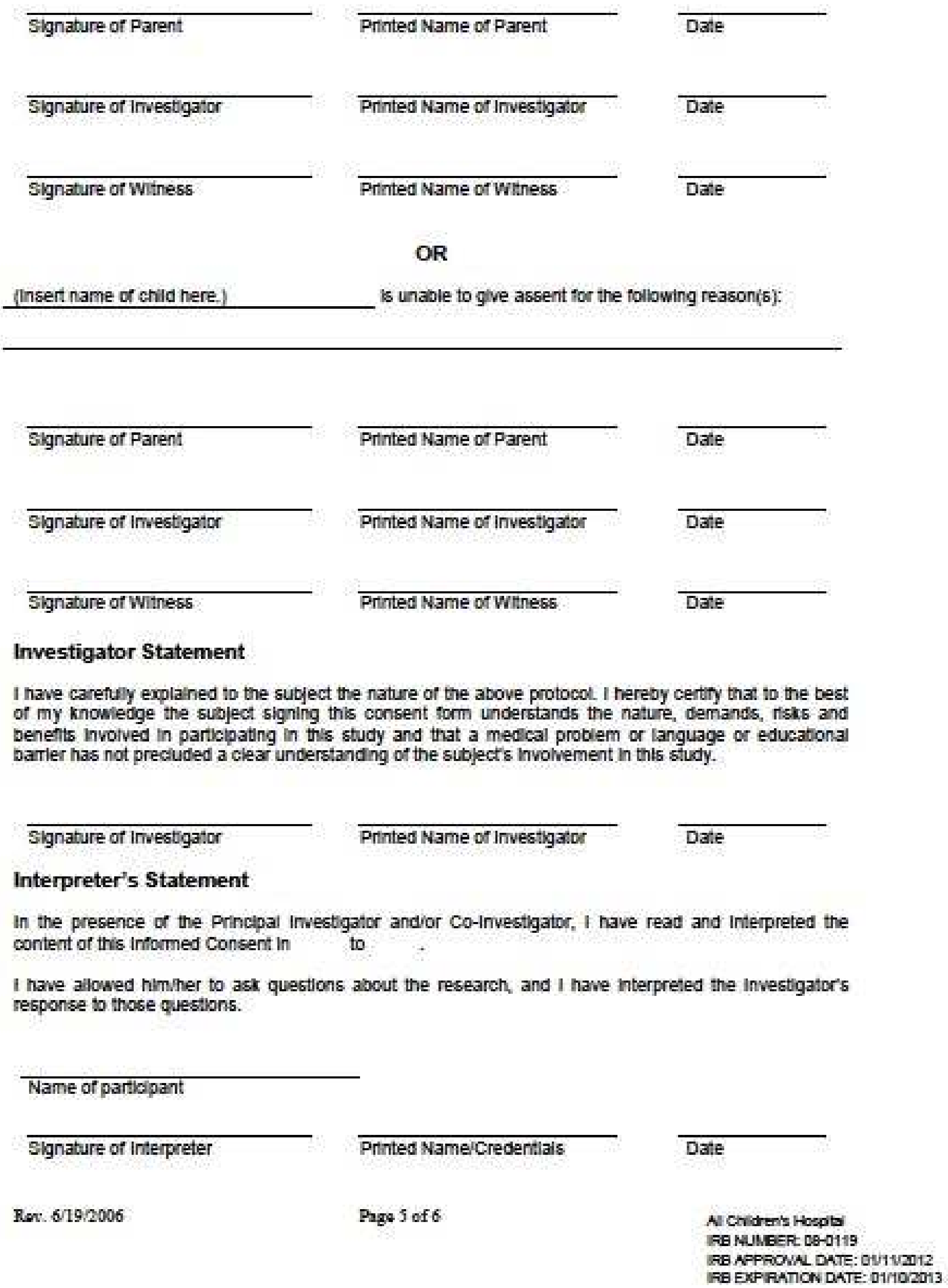

Signature of Parent	Printed Name of Parent	Date
Signature of Investigator	Printed Name of Investigator	Date
Signature of Witness	Printed Name of Witness	Date

OR

(Insert name of child here.) is unable to give assent for the following reason(s):

Signature of Parent	Printed Name of Parent	Date
Signature of Investigator	Printed Name of Investigator	Date
Signature of Witness	Printed Name of Witness	Date

Investigator Statement

I have carefully explained to the subject the nature of the above protocol. I hereby certify that to the best of my knowledge the subject signing this consent form understands the nature, demands, risks and benefits involved in participating in this study and that a medical problem or language or educational barrier has not precluded a clear understanding of the subject's involvement in this study.

Signature of Investigator	Printed Name of Investigator	Date

Interpreter's Statement

In the presence of the Principal Investigator and/or Co-Investigator, I have read and interpreted the content of this Informed Consent in to .

I have allowed him/her to ask questions about the research, and I have interpreted the Investigator's response to those questions.

Name of participant

Signature of Interpreter	Printed Name/Credentials	Date

All Children's Hospital
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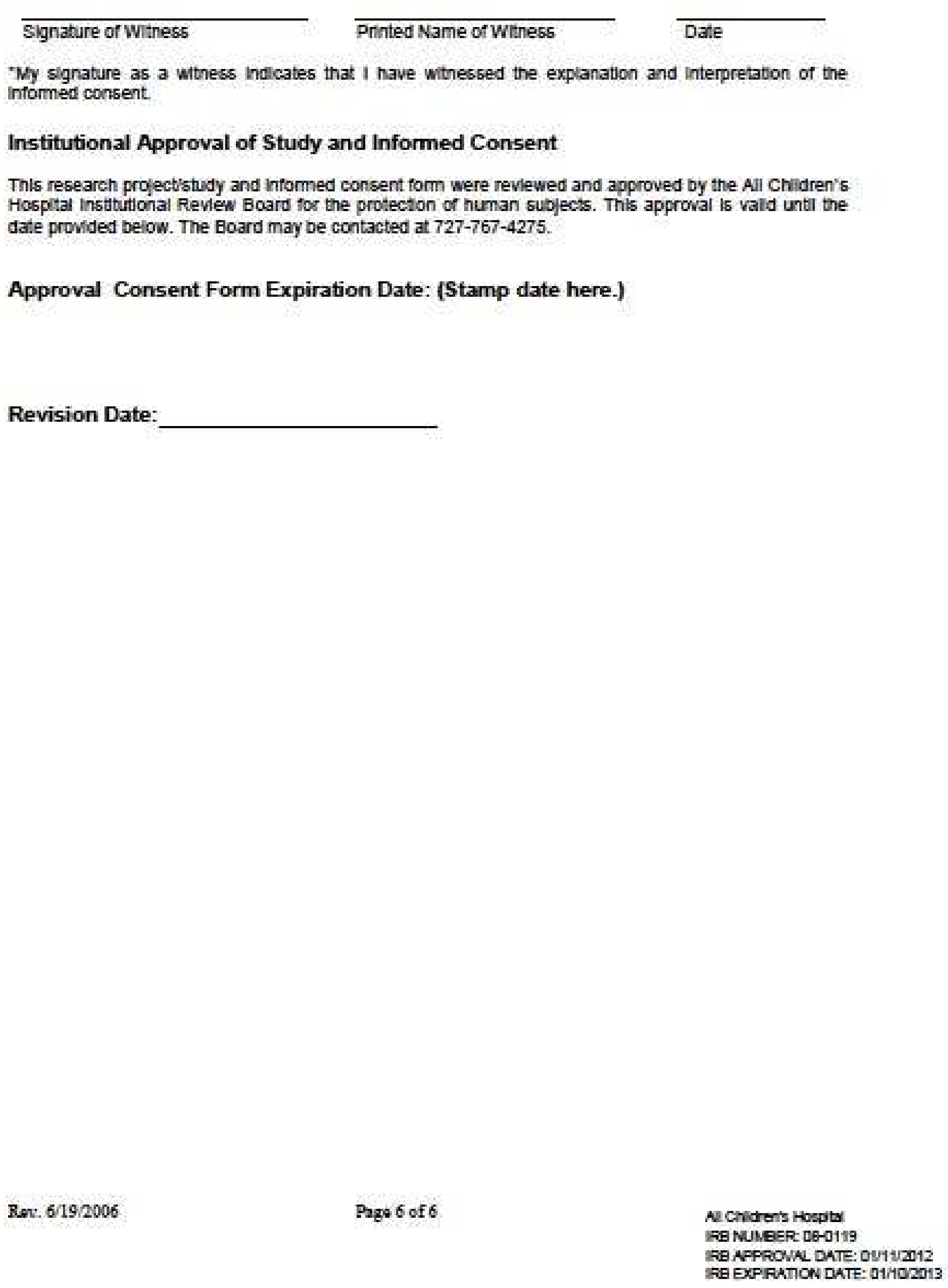
IRB APPROVAL DATE: 01/11/2012
IRB EXPIRATION DATE: 01/10/2013



Signature of Witness | Printed Name of Witness | Date

*My signature as a witness indicates that I have witnessed the explanation and interpretation of the informed consent.

Institutional Approval of Study and Informed Consent

This research project/study and informed consent form were reviewed and approved by the All Children's Hospital Institutional Review Board for the protection of human subjects. This approval is valid until the date provided below. The Board may be contacted at 727-767-4275.

Approval Consent Form Expiration Date: (Stamp date here.)

Revision Date:______________________

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All Children's Hospital
IRB NUMBER: 08-0119
IRB APPROVAL DATE: 01/11/2012
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Appendix C: Demographic Form

DEMOGRAPHIC FORM

1. Child’s Age: _______/________ Child’s Date of Birth _________________
years months

2. Child’s Gender: Male / Female Child’s Grade ________

3. Child’s Ethnicity: __________________________

4. Family Income:
   ___below $25,000
   ___$26,000-$50,000
   ___$51,000-$75,000
   ___$76,000-$100,000
   ___more than $100,000

5. Child’s living situation (with whom does your child live):

   Name:__________________ Relation:________________________________
   Name:__________________ Relation:________________________________
   Name:__________________ Relation:________________________________
   Name:__________________ Relation:________________________________
   Name:__________________ Relation:________________________________

6. Parent’s marital status (mark one):
   ___ single, never married
   ___ single, divorced separated
   ___ widowed
   ___ married/cohabiting

7. Parent’s employment status:
   ___ unemployed
   ___ employed – if so, what is your current occupation?_________________________
   ___ homemaker
   ___ retired – if so, what was your most recent occupation?______________________

8. Age of onset of child’s OCD:____________

Medications	Highest Dosage	When Started	Duration of Taking

9. Has your child ever received outpatient treatment for:

OCD	Medication	Therapy	Other
Anxiety	Medication	Therapy	Other
Depression	Medication	Therapy	Other
Behavior Problems	Medication	Therapy	Other
Family Problems	Medication	Therapy	Other
Drugs/Alcohol Use	Medication	Therapy	Other
Other___________	Medication	Therapy	Other

Appendix D: Academic Impact Inventory

We have designed this brief questionnaire to help us better understand the impact that obsessive-compulsive symptoms may have on children's academic experiences. Please take a few minutes to complete this sheet and feel free to ask any questions. Thank you for your time!

Person completing form: Mother Father Other (List): ______________

1. What type of obsessive-compulsive symptoms has your child displayed over the past month? *(Circle all that apply)*
    a. Contamination concerns and washing rituals
    b. Repeating behaviors
    c. Checking rituals
    d. Counting
    e. Distressing thoughts (religion, sex, aggression)
    f. Touching, tapping, rubbing
    g. Reassurance seeking or confessing
    h. Hoarding or collecting objects
    i. Other: ____________
    ____
    ____
    ____

2. How long has your child displayed such behavior(s) in years? ____________

3. Before the obsessive-compulsive symptoms began, did your child receive special educational services (yes/no)? ____________

4. <u>Before</u> the obsessive-compulsive symptoms began, what was your child's average academic performance level?
    a. All A's
    b. Mostly A's with some B's
    c. All B's
    d. Mostly B's with some C's
    e. All C's
    f. Mostly C's with some D's
    g. All D's
    h. Mostly D's with some failing grades
    i. Failing in most areas

5. Since the onset of your child’s symptoms, what has their average academic performance level been like?

   a. All A’s
   b. Mostly A’s with some B’s
   c. All B’s
   d. Mostly B’s with some C’s
   e. All C’s
   f. Mostly C’s with some D’s
   g. All D’s
   h. Mostly D’s with some failing grades
   i. Failing in most areas

6. Before the onset of obsessive-compulsive symptoms, how much time on average (in minutes) was necessary for your child to complete their assigned schoolwork?

   _____________ minutes

7. Since the onset of obsessive-compulsive symptoms, how much time on average (in minutes) is necessary for your child to complete their assigned schoolwork?

   _____________ minutes

8. Before the onset of your child’s obsessive-compulsive symptoms:
   a. How many days of school would he or she miss in a given month? _______
   b. How many days was he or she tardy to school in a given month? _______
   c. How many days did he or she leave school early in a given month? _______
   d. How many times did he or she change schools? _______

9. Since the onset of your child’s obsessive-compulsive symptoms:
   a. How many days of school does he or she miss in a given month? _______
   b. How many days is he or she late to school in a given month? _______
   c. How many days does he or she leave school early in a given month? _______
   d. How many times has he or she changed schools? _______

10. Since the onset of your child’s symptoms, does your child receive special education services (yes/no)? ____________

11. Please list any current or prior medications used to treat your child’s obsessive-compulsive symptoms.

Name of medication	**Beginning dosage**	**Highest dosage**	**How long was it used? (mm/yy - mm/yy)**	**% Reduction in Symptom Severity?**	**Side Effects**

12. Please indicate any of the following strategies that you have implemented to assist your child since their OCD onset, as well as how helpful you found the strategies to be.

Strategy	**Did you try it?**	**For how long?**	**Was it effective?**
Individual tutoring	Yes/No		Very / Somewhat / Minimally / Not at all
Psychotherapy	Yes/No		Very / Somewhat / Minimally / Not at all
Parenting classes	Yes/No		Very / Somewhat / Minimally / Not at all
Consulting with teachers about home/classwork	Yes/No		Very / Somewhat / Minimally / Not at all
Consulting with other school personnel (e.g., principal, guidance counselor, behavior specialist)	Yes/No		Very / Somewhat / Minimally / Not at all
Consulting with your Pediatrician	Yes/No		Very / Somewhat / Minimally / Not at all
Books & internet resources	Yes/No		Very / Somewhat / Minimally / Not at all
(Other - Please list)			Very / Somewhat / Minimally / Not at all
(Other - Please list)			Very / Somewhat / Minimally / Not at all

Thank you again for helping us!

Appendix E: Child OCD Impact Scale – Child Report

Name: ____________________________________ Date: ___________________

Clinician: ___________________________ Treatment Week: ______________

Please rate how much your OCD (unwanted thoughts and rituals) has caused problems for you in the following areas over the past month. If the question does not apply to you (for example, you don’t take Gym Class – Question 11) mark “Not at all”.

In the past month, how much trouble have you had doing the following because of your OCD?	Not at all	Just a little	Pretty Much	Very Much
SCHOOL ACTIVITIES				
1. Getting to school on time in the morning				
2. Being absent from school				
3. Getting to classes on time during the day				
4. Giving oral reports or reading out loud				
5. Being prepared for class, like having my books, paper or pencils ready when needed				
6. Writing in class				
7. Taking tests or exams				
8. Completing assignments in class				
9. Doing homework				
10. Getting good grades				
11. Participating in gym or P.E. activities				
12. Changing or showering for gym				
13. Doing fun things during recess or free time				
14. Concentrating on my work				
15. Eating lunch with other kids				
16. Going to school outings or field trips				
SOCIAL ACTIVITIES				
17. Making new friends				
18. Keeping friends I already have				

In the past month, how much trouble have you had doing the following because of your OCD?	Not at all	Just a little	Pretty Much	Very Much
19. Leaving the house	________	________	________	________
20. Talking on the phone	________	________	________	________
21. Being with a group of people that I know	________	________	________	________
22. Being with a group of strangers	________	________	________	________
23. Going to a friend’s house during the day	________	________	________	________
24. Having a friend come to my house during the day	________	________	________	________
25. Spending the night at a friend’s house	________	________	________	________
26. Having someone spend the night at my house	________	________	________	________
27. Letting someone touch or use my things, like toys, records, or clothes	________	________	________	________
28. Doing activities where someone else touches me, like playing sports, dancing, or having someone comb my hair	________	________	________	________
29. Going to the movies	________	________	________	________
30. Going to a sports event or ball game	________	________	________	________
31. Going shopping or trying on clothes	________	________	________	________
32. Going on a date	________	________	________	________
33. Having a boyfriend/girlfriend	________	________	________	________
34. Going to a restaurant or fast food place	________	________	________	________
35. Eating in public other than a restaurant, like on a picnic, in the park, or at a friend’s house	________	________	________	________
HOME/FAMILY ACTIVITIES				
36. Getting dressed in the morning	________	________	________	________
37. Bathing or grooming (brushing my teeth or combing my hair) in the morning	________	________	________	________
38. Bathing or grooming at other times, like before going out in the evening	________	________	________	________
39. Doing chores that I am asked to do, like washing the dishes, taking the garbage out, or cleaning my room	________	________	________	________
40. Eating meals at home	________	________	________	________

In the past month, how much trouble have you had doing the following because of your OCD?	Not at all	Just a little	Pretty Much	Very Much
41. Eating different kinds of food that I usually like				
42. Watching television or listening to music				
43. Reading books, magazines, or newspapers for fun				
44. Getting ready for bed at night				
45. Sleeping at night				
46. Going to the bathroom				
47. Getting along with my brothers or sisters				
48. Getting along with my parents				
49. Visiting relatives				
50. Having relatives visit				
51. Going on a family vacation				
52. Going to church or temple				

Please list any other areas where your intrusive thoughts or rituals are causing problems for you:

53.______________________________________

54.______________________________________

In the past month, how much trouble have you had doing the following because of your OCD?	Not at all	Just a little	Pretty Much	Very Much
GLOBAL ITEMS				
55. Overall, how much is your OCD (intrusive thoughts or rituals) causing problems for you at school?				
56. Overall, how much is your OCD (intrusive thoughts or rituals) causing problems for you socially, this is with friends?				
57. Overall, how much is your OCD (intrusive thoughts or rituals) preventing you from going places with friends or relatives?				
58. Overall, how much is your OCD (intrusive thoughts or rituals) causing problems for you with your family and at home?				

Appendix F: Students' Life Satisfaction Scale

Students' Life Satisfaction Scale (SLSS)

(E. S. Huebner, 1991)

Directions: Please circle the response choice that indicates how much you agree with each of the following statements.

	Strongly Disagree	Moderately Disagree	Mildly Disagree	Mildly Agree	Moderately Agree	Strongly Agree
My life is going well	1	2	3	4	5	6
My life is just right	1	2	3	4	5	6
I would like to change many things in my life	1	2	3	4	5	6
I wish I had a different kind of life	1	2	3	4	5	6
I have a good life	1	2	3	4	5	6
I have what I want in life	1	2	3	4	5	6
My life is better than most kids	1	2	3	4	5	6

Appendix G: Positive and Negative Affect Scale for Children

Positive and Negative Affect Scale for Children (PANAS-C; Laurent et al., 1999)

This scale consists of a number of words that describe different feelings and emotions. Read each item and then circle the appropriate answer next to that word. Indicate to what extent you have felt this way during the past few weeks.

Feeling or emotion:	**Very slightly or not at all**	**A little**	**Moderately**	**Quite a bit**	**Extremely**
1. Interested	1	2	3	4	5
2. Sad	1	2	3	4	5
3. Frightened	1	2	3	4	5
4. Excited	1	2	3	4	5
5. Ashamed	1	2	3	4	5
6. Upset	1	2	3	4	5
7. Happy	1	2	3	4	5
8. Strong	1	2	3	4	5
9. Nervous	1	2	3	4	5
10. Guilty	1	2	3	4	5
11. Energetic	1	2	3	4	5
12. Scared	1	2	3	4	5
13. Calm	1	2	3	4	5
14. Miserable	1	2	3	4	5
15. Jittery	1	2	3	4	5
16. Cheerful	1	2	3	4	5
17. Active	1	2	3	4	5
18. Proud	1	2	3	4	5
19. Afraid	1	2	3	4	5
20. Joyful	1	2	3	4	5
21. Lonely	1	2	3	4	5
22. Mad	1	2	3	4	5
23. Disgusted	1	2	3	4	5
24. Delighted	1	2	3	4	5
25. Blue	1	2	3	4	5
26. Gloomy	1	2	3	4	5
27. Lively	1	2	3	4	5