



Family functioning in paediatric obsessive compulsive and related disorders

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Objective. Research among youths with obsessive compulsive disorder (OCD) has shown a significant relationship between illness severity, treatment outcome, and the family environment yet little work has been undertaken among the broader class of obsessive compulsive and related disorders (OCDs) – Trichotillomania, body dysmorphic disorder (BDD), skin picking disorder (SPD), and hoarding. The aim of this study was to (1) review the family functioning literature among paediatric OCDs, (2) address limitations to previous studies, and (3) highlight areas in need of further research.

Methods. A review of the literature was conducted using several databases (i.e., Google Scholar, PubMed, ScienceDirect) and employing key search terms (e.g., ‘family functioning’, ‘paediatric OCD’). The resultant articles examined several domains subsumed under the broader heading of family environment including parental mental health, parenting practices, family dynamics, family involvement with symptoms, and family emotional climate.

Results. The literature reviewed demonstrated a strong relationship between paediatric OCD and adverse family functioning (e.g., parental symptoms of anxiety and depression, family accommodation, family strain and stress, parental guilt and fear) in all identified domains. While family functioning research in paediatric OCD was relatively scant, research suggested similar familial dysfunction (e.g., limited independence, low family cohesion, family violence). Collectively, only 1 article, examining BDD, assessed family functioning within other OCDs.

Conclusions. This review supports the need for further research in the OCDs. Limitations to the available literature and targeted suggestions for future research are discussed.

Practitioner points

- The domains of family environment in this study indicate specific family functioning deficits that may serve as aetiological and/or maintenance factors in paediatric OCDs, possibly contributing to the understanding of these complex disorders.
- The recognition of family deficits in paediatric OCDs may prove beneficial in developing or bolstering preventative and/or therapeutic interventions.
- Insufficient number of articles pertaining to family functioning in some paediatric OCDs (i.e., hoarding, skin picking) inhibits formal conclusions.
- Magnitudes of family functioning effects were not calculated; therefore, future research should consider meta-analytic analyses.

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With the recent changes to the Diagnostic and Statistical Manual of Mental Disorders 5th Edition (American Psychiatric Association, 2013), a new cluster of disorders, thought to overlap in some regard with respect to aetiological and maintaining factors, has been created consisting of obsessive compulsive disorder (OCD), trichotillomania (hair pulling disorder; HPD), body dysmorphic disorder (BDD), hoarding, and skin picking disorder (SPD). This cluster of diagnoses has been termed obsessive compulsive and related disorders (OCRDs). Available evidence suggests that these discrete diagnoses pose considerable difficulty and distress to millions of children and adolescents – hereafter referred to as ‘youths’ unless otherwise specified. In particular, OCD affects between 1.5 and 2.2 million youths in the United States alone (Valleni-Basile *et al.*, 1994) and has been linked to significant psychosocial impairment in areas such as social relationships, academic performance, and family interaction (Derisley, Libby, Clark, & Reynolds, 2005; Hughes, Hedtke, & Kendall, 2008; Piacentini, Bergman, Keller, & McCracken, 2003; Storch *et al.*, 2008).

Although studied less frequently, particularly among youths, HPD, BDD, SPD, and hoarding also exhibit a childhood onset and occur in a significant portion of the population – with an estimated cumulative prevalence of approximately 8 million in the United States. Of note, due to high levels of comorbidity among these disorders, such prevalence may be an overestimation of actual occurrence. Nevertheless, HPD, BDD, SPD, and hoarding similarly exert a significant impact on functioning across a variety of domains. For example, HPD is characterized by recurrent hair pulling, is primarily found among females, and affects approximately 3.4% of the adult population, with a significant portion exhibiting a child onset (Bruce, Barwick, & Wright, 2005; Christenson, Pyle, & Mitchell, 1991). In turn, HPD has been linked to low quality of life, impaired social interaction, and, among youths, poor school functioning and significant distress (Diefenbach, Tolin, Hannan, Crocetto, & Worhunsky, 2005; Tolin, Franklin, Diefenbach, Anderson, & Meunier, 2007). Similarly, among youths, BDD has been linked to impaired social and academic functioning (Albertini & Phillips, 1999), with significant risk factors (i.e., body image concerns and disturbances) for the development of BDD later in life identified in children as young as 6 years old (Tremblay & Limbos, 2009). Clearly, the presence of and difficulties posed by these disorders strengthen the need for increased research within the OCRDs.

Recently, the National Institute of Mental Health (NIMH) has called for a new classification of psychopathology based on dimensions of observable behaviour (e.g., self-report of symptoms, social behaviour) and neurobiological measures (e.g., physiological activity, genetics; NIMH, 2011). This new approach has been termed the Research Domain Criteria (RDoC) initiative. Although heavily focused on the neurological basis of disorders, RDoC also acknowledges the critical importance of human development and environmental processes in the pathogenesis of clinical phenomena and disorders. In light of this importance, research has begun to focus on the impact of psychosocial aspects as both risk and protective factors in youth pathology. For example, psychopathology research has examined the role family context may play in the development of OCRDs (Bipeta, Yerramilli, Pingali, Karredla, & Ali, 2013; Futh, Simonds, & Micali, 2012; Keuthen, Fama, Altenburger, Allen, & Raff, 2013). Considering youths’ dependence on their family, it is important to understand how families may contribute to the onset, maintenance, and/or treatment of disorders demonstrating an onset during childhood, such as OCRDs. In turn, these data – both at the diagnostic (i.e., OCD, HPD, hoarding) and transdiagnostic (i.e., OCRDs) level – can inform RDoC-related research seeking to better understand the development and maintenance of these problems in youths.

Often, research examines a multitude of factors relating to the family (e.g., parental mental health, parenting practices, family involvement, cohesion) under the broad title of family functioning or environment. From the perspective of paediatric OCD, many conclusions based upon the family environment germane to OCD were, initially, generalized from the paediatric anxiety literature. This research generally demonstrated child anxiety to be related to parental over involvement, high levels of overprotection, parental rejection, insecure parent, and child attachment and family dysfunction (Bögels & Brechman-Toussaint, 2006; Breinholst, Esbjørn, Reinholdt-Dunne, & Stallard, 2012; Crawford & Manassis, 2001; Ginsburg, Siqueland, Masia-Warner, & Hedtke, 2004). Although these studies provided a necessary foundation for family functioning research within the context of paediatric OCD, Barrett, Shortt, and Healy (2002) and others have noted that it was premature to generalize anxiety findings to OCD families. Consequently, the past decade has seen a surge in research specific to paediatric OCD and the family environment. Broadly speaking, this influx of research has consistently demonstrated a strong link between poor family functioning and worse treatment outcome (Garcia *et al.*, 2010; Przeworski *et al.*, 2012; Renshaw, Steketee, & Chambliss, 2005; Smorti, 2012). While this line of study has reinforced the need to obtain a more complete understanding of the family environment in child-onset OCD, it also suggests the potential importance of such research as it relates to other OCRDs, particularly given the renewed interest in viewing psychopathology in a more transdiagnostic fashion.

The primary aim of this study was to (1) provide a comprehensive review of the family functioning literature among paediatric OCRDs and (2) highlight key areas in need of further research. Given the discrepancy between the number of studies assessing family functioning among youths with OCD compared to other OCRDs, this review will necessarily be weighted towards the paediatric OCD literature. For example, family functioning literature relevant to paediatric SPD is non-existent. Notably, however, this is the first study to jointly examine family environment research within the broader OCD classification scheme. An exhaustive review of the literature was conducted via Internet using the following databases: Google Scholar, PubMed, and ScienceDirect. Keywords used in this search included the following: 'family functioning', 'family environment', 'parental rearing', 'childhood', 'paediatric OCD', 'body dysmorphic disorder', 'hoarding', 'skin picking', 'hair pulling disorder', 'trichotillomania', 'OCD spectrum disorders', and 'treatment'. This process revealed 54 articles related to family functioning in paediatric OCRDs (see Table 1), with ultimately 37 selected for review (see Table 2) based largely upon the following criteria including (1) articles peer reviewed within the last 25 years, (2) exclusion of case studies, (3) exclusion of articles assessing majority adult samples, and (4) exclusion of repetitive review articles. Upon analysis of the literature, areas of the family (e.g., accommodation, parental perception, family violence) assessed within the selected studies were compiled into a comprehensive list and grouped into five primary domains as it relates to the family environment (i.e., parental mental health, parenting practices, family dynamics, family involvement with symptoms, family emotional climate). What follows is a review of this literature.

Parental mental health

Within this review, parental mental health refers to the presence or absence of psychiatric symptoms and/or diagnoses in parents of youths with OCRDs. Research has shown a

Table 1. Literature review findings

Study	Used in review
Amir, Freshman, and Foa (2009)	
Alonso <i>et al.</i> (2004)	*
Barrett <i>et al.</i> (2002)	*
Bipeta <i>et al.</i> (2013)	*
Boileau (2011)	
Boughn and Holdom (2003)	*
Cameron (2007)	
Caporino <i>et al.</i> (2012)	*
Cooper (1996)	
Derisley <i>et al.</i> (2005)	*
Farrell, Hourigan, and Waters (2013)	*
Fentz, Arendt, O'Toole, Rosenberg, and Hougaard (2011)	
Flessner, Freeman <i>et al.</i> (2011)	*
Futh <i>et al.</i> (2012)	*
Garcia <i>et al.</i> (2010)	*
Gershuny <i>et al.</i> (2006)	*
Haciomeroglu and Karanci (2013)	*
Jacobi, Calamari, and Woodard (2006)	*
Keeley, Storch, Merlo, and Geffken (2008)	
Keuthen <i>et al.</i> (2013)	*
Kirkcaldy, Furnham, and Siefen (2010)	
Lawrence and Williams (2011)	*
Lennertz <i>et al.</i> (2010)	*
Merkel, Pollard, Wiener, and Staebler (1993)	
Merlo, Lehmkuhl, Geffken, and Storch (2009)	*
Moore <i>et al.</i> (2009)	*
Oranje, Peereboom-Wynia, and De Raeymaecker (1986)	
Park, Rahman, Murphy, and Storch (2012)	*
Peleg-Popko and Dar (2003)	
Peris, Benazon, Langley, Roblek, and Piacentini (2008)	*
Peris, Bergman, <i>et al.</i> (2008)	*
Peris, Sugar, <i>et al.</i> (2012)	
Peris, Yadegar, <i>et al.</i> (2012)	*
Pietrefesa, Schofield, Sochting, and Coles (2010)	*
Pollock and Carter (1999)	*
Przeworski <i>et al.</i> (2012)	*
Reeve, Bernstein, and Christenson (1992)	*
Renshaw <i>et al.</i> (2005)	*
Shafran, Ralph, and Frank (1995)	
Smorti (2012)	*
Storch, Björgvinsson, <i>et al.</i> (2010)	
Storch <i>et al.</i> (2007)	*
Storch <i>et al.</i> (2008)	
Storch <i>et al.</i> (2009)	*
Storch <i>et al.</i> (2011)	
Storch, Larson, <i>et al.</i> (2010)	
Sukhodolsky <i>et al.</i> (2005)	
Timpano, Keough, Mahaffey, Schmidt, and Abramowitz (2010)	*

Continued

Table 1. (Continued)

Study	Used in review
Tremblay and Limbos (2009)	*
Turgeon, O'Connor, Marchand, and Freeston (2002)	*
Valleni-Basile <i>et al.</i> (1995)	*
Waters and Barrett (2000)	*
Wilcox <i>et al.</i> (2008)	*
Wright and Holmes (2003)	*

Note. *Article used in the current review.

significant relationship between parental psychological health and paediatric OCD (Smorti, 2012). Compared to parents of non-clinical and anxious youths, parents of youths with OCD have exhibited poorer mental health (i.e., presence of pathology symptoms). For example, Derisley *et al.* (2005) found that parents of youths with OCD exhibited greater symptoms of depression, phobic anxiety, and psychoticism than parents of anxious youths. Similarly, in a sample of 43 youths with OCD, Futh *et al.* (2012) found that mothers' depression scores were similar to clinical sample means, with 26% and 14% of mothers considered to be 'moderately' or 'severely' depressed, respectively. Compared to fathers' ratings, mothers also exhibited significantly more stress and anxiety. These findings have been replicated in other studies indicating that mothers of youths with OCD demonstrate higher levels of depression and anxiety than mothers of anxious and non-clinical youths (Barrett *et al.*, 2002; Smorti, 2012). In contrast to the findings of Futh *et al.* (2012), however, Barrett *et al.* (2002) found that fathers of youths with OCD exhibited greater levels of anxiety when compared to mothers and fathers of both anxious and non-clinical youths. Collectively, these findings highlight the importance of understanding parental mental health among youths with OCD – particularly given the increased heritability of OCD noted among child-onset cases (Nestadt *et al.*, 2000; do Rosario-Campos *et al.*, 2005) – but also suggests the need for more studies evaluating the psychological health of fathers of youths with OCD.

Unlike the OCD literature, scant research ($n = 2$) has looked at parental mental health among other paediatric OCRDs. Such articles have focused on paediatric HPD. Keuthen *et al.* (2013) examined family functioning in adolescents with HPD and their parents and found that mothers of adolescents with HPD exhibited higher levels of both anxiety and depression compared to the mothers of healthy controls. Similarly, Wright and Holmes (2003) reported on the characteristics of 10 toddlers exhibiting hair pulling from the scalp and noted parental mental illness as a common source of family stress among participants. In summation, available paediatric OCD research suggests increased rates of mental health concerns, particularly in relation to anxiety and depression, among the parents (primarily mothers) of youths with OCD and HPD although the latter problem has received less attention. Unfortunately, the state of the literature is such that fathers have largely been excluded from such analyses and, to date, parental mental health has not been examined among the remaining OCRDs (i.e., BDD, hoarding, SPD).

Parenting styles and practices

Paediatric OCD research has also frequently examined the role of parenting practices and styles in the disorder. Within this context, parenting styles refer to the overall emotional

Table 2. Articles selected for review

Study	n	Youth age (years)	OCRD		Report	Family functioning outcome measures	Comparison group used
			Symptom level	level			
Parental Mental Health							
Barrett et al. (2002)	83 Youths + parents	7–14	Clinical	Clinical	Parent	DASS, family discussion task	Anxious, externalizing, non-clinical
Derisley et al. (2005)	118 Parent-child dyads	11–18	Clinical	Clinical	Parent	BSI, CRI, FAD	Anxious, non-clinical
Futh et al. (2012)	71 Parents	9–18	Clinical	Clinical	Parent	DASS, FAS, WOCQ, writing task	None
Keuthen et al. (2013)	150 Youths + parents	13–18	Clinical	Clinical	Parent and child	FAM-III, FES, SIPA	Matched controls with no HPD or hair pulling
Smorti (2012)	N/A	N/A	N/A	N/A	Review article	N/A	N/A
Wright and Holmes (2003)	10 Youths	26 months*	Clinical	Clinical	Case series	None	None
Parenting Styles and Practices							
Alonso et al. (2004)	80	17–55	Clinical	Clinical	Child (retrospective)	EMBU	Healthy controls
Farrell et al. (2013)	28 Mother-child dyads	8–12	Clinical	Clinical	Observation	Family discussion task	Non-clinical
Haciomeroglu and Karanci (2013)	300 Students	17–27	Non-clinical	Non-clinical	Child (retrospective)	LEIU, RAS, short-EMBU	None
Jacobi et al. (2006)	126 Youth-parent dyads	16.2 (1.2)*	Non-clinical	Non-clinical	Parent and child	OBQ	None
Lawrence and Williams (2011)	32 Youths	14–21	Clinical	Clinical	Parent and child	CDQ-R, ILQ, OQA	Adolescents with no history of OCD diagnosis

Continued

Table 2. (Continued)

Study	<i>n</i>	Youth age (years)	OCRD Symptom level	Report	Family functioning outcome measures	Comparison group used
Lennertz et al. (2010)	122 Child-sibling dyads	38.1 (12.4)	Clinical	Child (retrospective)	EMBU (German Version)	Healthy control-sibling dyads
Pietrefesa et al. (2010)	28 Youth-mother dyads	9-17	Clinical	Parent and child	OBQ, OBQ-CV	None
Pollock and Carter (1999)	N/A	N/A	N/A	Review article	N/A	N/A
Reeve et al. (1992)	10 Youths + parents	6-15	Clinical	Parent and child	FES	None
Timpano et al. (2010)	227 Students	17-24	Non-clinical	Child	PAQ	None
Turgeon et al. (2002)	201	41 (9.33)*	Clinical	Child (retrospective)	EMBU, PBI	Panic disorder with agoraphobia and non-anxious controls
Tremblay and Limbos (2009)	N/A	N/A	N/A	Review article	N/A	N/A
Wilcox et al. (2008)	1200 Adults + families	44 (16.8)*	Clinical	Child (retrospective)	PBI	None
Family Dynamics						
Boughn and Holdom (2003)	44	33.7 (8.9)*	Clinical (not confirmed)	Child (retrospective)	Phone interviews	None
Gershuny et al. (2006)	42 Adolescents and adults	17-55	Clinical	Child	TES-L	None
Moore et al. (2009)	133+ Parents	10-17	Clinical (not confirmed)	Child	ATMCQ, FAM	None
Storch et al. (2009)	62 Parent-child dyads	6-20	Clinical	Parent	CGSQ, FAS, PECE	None

Continued

Table 2. (Continued)

Study	n	Youth age (years)	OCRD Symptom level	Report	Family functioning outcome measures	Comparison group used
Valleni-Basile et al. (1995)	488 Mother-child dyads	≤12-≥15**	Clinical and subclinical	Parent	FACES-II	None
Family Involvement with Symptoms						
Bipeta et al. (2013)	35 Youths + parents	13.11 (3.16)*	Clinical	Parent	FAS	None
Caporino et al. (2012)	61 Parent-child dyads	6-17	Clinical	Parent and clinician rated	Family accommodation items, IRI	None
Flessner, Freeman et al. (2011)	96 Youths + parents	7-17	Clinical	Parent	BDI, BSI, FAS-PR, STAI-Trait, YBOCS-SR	None
Garcia et al. (2010)	112 Youths + parents	7-17	Clinical (RCT)	Parent	BSI, family history of OCD, FAM-III, FAS-PR	CBT, CBT and sertraline, placebo
Merlo et al. (2009)	50 Youths + parents	6-18	Clinical	Parent	FAS-PR	None
Peris, Bergman et al. (2008)	65 Youths + parents	8-17	Clinical	Parent	BSI, FAS-PR, FES, Y-BOCS,	None
Renshaw et al. (2005)	N/A	N/A	N/A	Review article	N/A	N/A
Storch et al. (2007)	57 Parent-child dyads	7-17	Clinical	Parent	FAS	N/A
Waters and Barrett (2000)	N/A	N/A	N/A	Review article	N/A	N/A
Family Emotional Climate						
Park et al. (2012)	N/A	N/A	N/A	Review article	N/A	N/A
Peris, Benazon et al. (2008)	123 Youths	5-17	Clinical	Parent	PABS, PRFA	None

Continued

Table 2. (Continued)

Study	<i>n</i>	Youth age (years)	OCRD		Report	Family functioning outcome measures	Comparison group used
			Symptom level	Symptom level			
Peris, Bergman et al. (2012)	58 Mother-child dyads	8-17	Clinical (RCT)	Parent	Parent	FMSS, PABS	None for family specific analyses
Przeworski et al. (2012)	62 Mother-child dyads	7-17	Clinical	Clinical	Clinician rated	FMSS, TMSS	N/A

Note. *For articles in which age range was not provided, mean age and standard deviations are cited.

**Study did not provide specific age range.

ATMCQ: Attitudes Toward My Child Questionnaire, BDI: Beck Depression Inventory, BSI: Brief Symptom Inventory, CDQ-R: Child Development Questionnaire, CGSQ: Caregiver Strain Questionnaire, CRI: The Coping Responses Inventory, DASS: Depression Anxiety Stress Scale, EMBU: Own Memories of Parental Rearing Experiences in Childhood, FACES-II: Family Adaptability and Cohesion Evaluation Scales, FAD: The McMaster Family Assessment Device, FAM-III: Family Assessment Measure, Version III, FAS: Family Accommodation Scale, FAS-PR: Family Accommodation Scale – Parent Report, FES: Family Environment Scale, FMSS: Five-Minute Speech Sample, ILQ: Independent Living Questionnaire, IRI: Interpersonal Reactivity Index, LEIU: Life Events Inventory for University Students, OBQ: Obsessive Beliefs Questionnaire, OBCQ-CV: Obsessive Beliefs Questionnaire – Child Version, OQA: Origins Questionnaire for Adolescents, PABS: Parental Attitudes and Beliefs Scale, PAQ: Parental Authority Questionnaire, PBI: Parental Bonding Instrument, PECI: Parent Experience of Chronic Illness, PRFA: Parental Report of Accommodation, RAS: Responsibility Attitudes Scale, STAI-Trait: State-Trait Anxiety Inventory-Trait, TES-L: Traumatic Experiences Scale – Lifetime, TMSS: Two-Minute Speech Sample, WOCQ: Ways of Coping Questionnaire, Y-BOCS-SR: Yale-Brown Obsessive Compulsive Scale – Self-Report.

climate in which parent's behaviours are expressed (e.g., authoritative parenting style which is characterized by high warmth/nurturance), while parenting practices refer to the specific behaviours through which parents rear their youths (e.g., disciplining or rewarding the child, granting independence to the child, control of child's behaviours; Darling & Steinberg, 1993). In one of the first studies to formally examine parenting practices within the families of youths with OCD, Barrett *et al.* (2002) found that mothers and fathers of youths with OCD were less likely to reward independence (i.e., modelling independent thinking and encouraging the child to think about ways he or she would solve a problem) compared to mothers and fathers of youths in the three comparison groups (i.e., anxiety, externalizing problems, no clinical problems). Somewhat relatedly, further studies have suggested high levels of parental control (i.e., control of a child's behaviours) in families of youths with OCD (Haciomeroglu & Karanci, 2013; Timpano *et al.*, 2010; Turgeon *et al.*, 2002) and overprotection (Wilcox *et al.*, 2008).

Interestingly and seemingly in stark contrast, despite several studies demonstrating low independence, reward, and high parental control in the families of youths with OCD, more recent findings have also demonstrated enhanced responsibility (i.e., responsibility for a given situation – such as problem solving scenarios – is disproportionately placed on a specific individual) among youths with OCD (Jacobi *et al.*, 2006; Pietrefesa *et al.*, 2010). For example, Farrell *et al.* (2013) compared enhanced responsibility in 12 OCD child–mother dyads and 16 non-clinical dyads. Responsibility was assessed through an observed family discussion task, in which mother and child were required to discuss and find solutions to aversive situations. Results found that mothers of youths with OCD enhanced their child's responsibility (for the given task) to a significantly greater extent than mothers of healthy controls and exhibited greater enhancement of their child's responsibility compared to their own. Likewise, the mothers of youths with OCD enhanced their own responsibility to a lesser extent than the mothers of healthy controls. Together, these results suggest an inordinate amount of responsibility placed on youths with OCD, specifically by mothers. Future research should examine whether similar relationships exist between youths with OCD and their fathers. Notably, past research has begun to examine the origins of enhanced responsibility in OCD populations. Specifically, using retrospective analyses, Lawrence and Williams (2011) examined pathways of inflated responsibility in adolescents with obsessive compulsive symptoms (both with and without OCD diagnoses). Findings indicated that while both groups experienced similar degrees of enhanced responsibility, OCD-diagnosed adolescents maintained a greater responsibility for specific incidents (i.e., incidents in which one's actions or inactions contribute to a negative outcome for the self or others). Such findings suggest potential moderating factors in the association between enhanced responsibility and OCD diagnosis. What is more, additional research has examined socialization processes in the development of inflated responsibility (Pollock & Carter, 1999). For example, Pietrefesa *et al.* (2010) demonstrated a significant positive relationship between beliefs of inflated responsibility and threat in youths with OCD and their mothers, suggesting that mothers experiencing increased levels of responsibility are more likely to have youths with similar inflated beliefs. Such findings may indicate potential modelling in relation to parental beliefs and resulting behaviours (e.g., highlighting potential danger, exhibiting anxious behaviour).

Although seemingly offering contradictory findings, research demonstrating enhanced responsibility, high parental control, and low independence reward in youths with OCD may provide support for hypotheses positing that anxiety and compulsions in OCD are the result of conflicting control beliefs (i.e., perceived low levels of control over

events in one's life coupled with a desire for increased control; Moulding & Kyrios, 2006). This is perhaps supported even more so by recent research identifying responsibility beliefs as a mediating factor in the relationship between maternal control and obsessive compulsive symptoms (Haciomeroglu & Karanci, 2013). Clearly, further research is necessary to better understand and test this hypothesis.

Another significant area of focus (and discussed to some extent already) within the paediatric OCD literature is the interactions that occur between parent(s) and their child with OCD within these families. Youths with OCD and their parents have shown significantly less positive interaction in family discussion tasks (i.e., tasks in which child and parent must find solutions to aversive situations) than healthy controls and their parents (Farrell *et al.*, 2013). Barrett *et al.* (2002) characterized this low positive interaction between youths with OCD and their parents to include less positive problem solving (i.e., failure to or less likely to help the child approach the situation in a positive and assertive way), less confidence in a child's ability (i.e., low or absence of expressed belief that one can solve the problem or achieve a result), and less warmth in interactions (i.e., low open body interaction, eye contact, pleasant tone of voice). Similarly, in relation to this latter area of study, Timpano *et al.* (2010) used retrospective analyses to examine parenting styles in college-aged young adults and found that obsessive compulsive symptoms were related to authoritarian parenting styles characterized by low levels of warmth. Such findings coincide with additional research demonstrating low parental warmth in the families of individuals with OCD (Alonso *et al.*, 2004; Lennertz *et al.*, 2010).

Although research in other OCRDs is relatively scarce, some studies have begun to examine parenting practices in HPD and, to a lesser extent, BDD. Keuthen *et al.* (2013) found that although mothers of adolescents with HPD endorsed greater levels of stress (see preceding section) than mothers of non-clinical controls, this increased level of stress exerted no influence on the quality of parent-child interactions. Additionally, Keuthen *et al.* noted a trend among adolescents with HPD, suggesting that these adolescents may exhibit less self-sufficiency and assertiveness among family members. These findings support past research indicating a relationship between childhood HPD and lack of independence given to the child (Reeve *et al.*, 1992). Within the context of BDD, evidence has shown that body image concern and disturbance can be considered risk factors in the identification of the disorder in youths as young as 6 years old (Tremblay & Limbos, 2009). Considering these findings, Tremblay and Limbos (2009) note the role of parental perception in a child's satisfaction with his or her own body. Specifically, the authors detail that body image distortion in youths may be implicitly learned from parents' perceptions or misperceptions of their child's weight. The authors also cite parent feeding practices as possible influential factors in youths' eating habits and perception of their own weight and body shape. Specifically, parental modelling of body image concerns (e.g., dieting, negative perceptions of their own weight) are positively correlated with body image concerns in youths. Overall, paediatric OCD research suggests a compelling interaction between parenting styles and practices and childhood OCD and, to a lesser extent, HPD and BDD. In particular, studies examining lack of independence and enhanced responsibility in OCD may provide corroborating evidence for conflicting control belief hypotheses – future research withstanding. Unfortunately, paediatric SPD and hoarding have not been examined in the context of parenting styles and practices and should be considered for future avenues of research.

Family dynamics

Family dynamics (i.e., family strain, distress, cohesion, violence) have received increased attention within the paediatric OCD literature recently. For example, Storch *et al.* (2009) found significant levels of distress and strain in families of youths with OCD, with both perceived stress and caregiver strain being negatively correlated with parents' perceived emotional resources (i.e., resources parents have available to contend with the illness). What is more, the parents of youths with OCD have expressed enduring impacts (as a result of OCD-related symptoms) on individual family members, as well as entire family systems (e.g., marital stress, impaired ability to support other youths; Futh *et al.*, 2012).

Given the general preponderance of research examining the family environment among youths with OCD as compared to HPD or other OCDs, within the realm of family dynamics, childhood HPD has received the greatest attention. Wright and Holmes (2003) noted the clear presence of family distress among this population. However, other researchers have noted that although HPD shows some disruption in family functioning, there may be a more moderate occurrence of distress, worsening with TTM severity (Moore *et al.*, 2009). More recently, Keuthen *et al.* (2013) found that greater distress concerning hair pulling was associated with greater family conflict and lessened family support. Beyond familial distress, and similar to OCD findings (Valleni-Basile *et al.*, 1995), the child HPD literature has also demonstrated impaired family role integration and low levels of cohesion. Reeve *et al.* (1992) studied family functioning in 10 child hair pullers, between the ages of 6 and 17 years old and found that, contradicting parent report, youths with HPD reported their families to be less cohesive than they would like.

Family violence has also been considered as a possible dynamic and a potential contributing factor to the development of HPD. Boughn and Holdom (2003) studied violence and chaos in the childhoods of 44 women with child-onset HPD and found that 86% of these women reported a history of violence they believed to be associated with their early hair pulling. More specifically, 82% of women reported some form of violence between one or both of their parents and themselves (i.e., arguing, yelling, abuse, rape). In addition, 59% reported some violence between their parents (i.e., yelling and emotional and physical abuse) and 18% reported some form of violence between their siblings and themselves (i.e., physical/emotional abuse, yelling, and sexual abuse). Although predicated on retrospective data collection and corresponding biases, these researchers noted the significantly higher incident of trauma in the HPD sample, as compared to trauma in the general population, and concluded that episodic violence may be, in part, responsible for HPD chronicity. Somewhat similarly, in a 2006 study of 42 adolescents and adults with HPD, 76% of individuals identified a history of at least one traumatic event (Gershuny *et al.*, 2006). Although the sample utilized in this study was not exclusive to HPD youths, 25.8% of individuals indicated experiencing childhood sexual abuse and 20% indicated experiencing childhood physical abuse. What is more, 38.5% of this sample indicated witnessing death, injury, or family violence. Collectively, such findings warrant additional research within the domain of family violence and youth HPD.

In summary, the paediatric OCD literature suggests a relationship between childhood HPD and OCD and negative family dynamics. Interestingly, in stark contrast to the prior examined domains of family environment, this area of research has focused mainly on paediatric HPD, with less focus on OCD. Analyses in this area have not included other OCDs (i.e., BDD, hoarding, SPD). Remediation of this limitation may involve specific outreach to OCD populations for future study recruitment. This may include

recruitment through child resources such as paediatricians, psychologists, and online parent self-help groups.

Family involvement with symptoms

Parents of youths with OCD often express both difficulty in understanding and helplessness in controlling pervasive symptoms (Futh *et al.*, 2012). Considering this struggle, families are often unsure how best to respond to their child's symptoms with evidence demonstrating that family's responses to OCD-related symptoms may range from accommodating to antagonistic (Waters & Barrett, 2000). Accommodating responses include actions which are either a part or supportive of OCD symptomology (e.g., facilitating in rituals, yielding to child's demands). In contrast, antagonistic responses refer to actions taken by family members that are critical or hostile towards the child's symptoms (e.g., avoidance, teasing, blame, demanding discontinuation of OCD symptoms at will; Smorti, 2012; Waters & Barrett, 2000). Although the two response styles can be considered opposite ends of a spectrum, both may reinforce OCD symptoms and the former approach (i.e., accommodation), although likely not distinct to OCD, has been studied almost exclusively within the context of youths and adults with OCD.

Increased family accommodation has been strongly linked to increased OCD severity, functional impairment, parental stress, and poor treatment outcome (Bipeta *et al.*, 2013; Garcia *et al.*, 2010; Merlo *et al.*, 2009; Renshaw *et al.*, 2005; Storch *et al.*, 2007). Despite these clear negative consequences, numerous studies have indicated high levels of family accommodation within the disorder (Caporino *et al.*, 2012; Lebowitz *et al.*, 2013; Waters & Barrett, 2000). For example, Flessner, Freeman *et al.* (2011) studied family accommodation in 96 youths, aged 7–17 years, using the previously validated Family Accommodation Scale – Parent Report (Flessner, Sapyta *et al.*, 2011) and found that 99% of parents reported engaging in at least one accommodating behaviour with their child. Seventy-seven per cent reported daily accommodation coming in the form of providing reassurance, participation in OCD rituals, and/or assistance in their child's avoidance of anxiety-provoking situations. Interestingly, several variables were found to predict increased family accommodation including child level (i.e., compulsion severity, oppositional behaviour, and frequency of washing symptoms) and parental level (i.e., symptoms of anxiety) predictors. Perhaps not surprisingly, family accommodation has been found to lead to extreme disruption and modification to work and family routines (Futh *et al.*, 2012) with Peris, Bergman, *et al.* (2008) finding that 43% of parents of youths with OCD in their study indicated at least moderate distress associated with accommodation. When accommodation was not met, parents reported extreme feelings of anger by the child.

Although examined to a lesser extent, past research similarly indicates poor treatment outcome and high levels of disruption (e.g., marital conflict) among families engaged in antagonistic responses to OCD symptoms (Waters & Barrett, 2000). In a 2005 review of OCD family research among youths and adults, Renshaw, Steketee, & Chambless hypothesized that such responses may contribute to elevated levels of stress and symptom exasperation. Current youth OCD literature lacks systematic identification of plausible rationale for antagonistic responses to youth OCD; however, research among adult populations indicates such reasons to include viewing symptoms to be within the individual's control and belief that such responses may help modify behaviour or reduce symptom interference (Peris, Benzaon, *et al.*, 2008). Future research should consider

examination of such factors among youth populations. What is more, research examining the Parental Attitudes and Behaviors Scale demonstrates antagonistic responses of hostility and blame to be positively associated with parental psychopathology (Peris, Benzaon *et al.*, 2008). This relationship may indicate predictors, maintaining factors, or consequences of family antagonism and, as such, may be a viable focus in family-centred OCD intervention (e.g., assessing for and providing treatment recommendations for possible parental pathology among antagonistic families). Additionally, given the adverse effects of such response patterns, research should further examine additional predictors of family antagonistic response.

In summary, studies show a strong presence of symptom response variation (i.e., accommodation and antagonism) in the families of youths with OCD. Given the detrimental effects of these responses on OCD treatment outcome, it is surprising that this line of research has not extended to the remaining OCRDs (i.e., HPD, SPD, BDD, and hoarding). Without similar research in the remaining diagnoses, it is impossible to ascertain whether accommodation and/or antagonism is equally an issue in these disorders as well. Considering this limitation, future research in the remaining OCRDs should examine (1) whether family accommodation and antagonistic responses are present and (2) whether family accommodation and antagonisms are associated with treatment outcome.

Family emotional climate

In addition to the domains of the 'family environment' examined in the preceding sections, researchers have also sought to develop a better understanding of the family emotional climate with a particular emphasis on the expression of affect among family members of youths with OCD. One of the most often studied areas within this domain has been expressed emotion, referring to a family environment characterized by hostility, criticism, or emotional over involvement. Specifically, research has demonstrated high levels of expressed emotion to be related to increased OCD severity, greater family accommodation, and poor treatment outcome (Peris, Benazon, *et al.*, 2008; Peris, Yadegar, Asarnow, & Piacentini, 2012; Waters & Barrett, 2000). For example, Przeworski *et al.* (2012) recently assessed expressed emotion in 62 OCD child–mother dyads using speeches in which the parent or child was asked to talk about their relationship with the other person. Parents were also asked to provide speeches about a sibling with no diagnosis of OCD. Przeworski *et al.* found that high expressed emotion within this sample was characterized by high criticism, rather than over involvement and that mothers exhibited greater expressed emotion towards the child with OCD than their unaffected sibling. What is more, youths with OCD who experienced high maternal expressed emotion or who exhibited greater expressed emotion towards their fathers demonstrated greater OCD symptom severity than youths without high maternal criticism or high criticism towards fathers. In a related line of inquiry, Storch *et al.* (2009) found a positive association between OCD symptom severity in youths and increased parental feelings of guilt, worry, and unresolved sorrow and anger.

Findings from the paediatric HPD literature have reached similar conclusions, finding that higher levels of frustration, anger, and aggression among families have been linked to greater HPD distress (Keuthen *et al.*, 2013; Park *et al.*, 2012). A novel finding within the HPD literature, however, is that despite parent belief of adequate expression of emotions and feelings (i.e., encouragement to directly express feelings), youths with HPD report

low levels of family expressiveness (Reeve *et al.*, 1992). Interestingly, despite the results found in regard to family emotional climate in HPD, as well as OCD, research in this area has not extended to the remaining OCRDs and represents yet another important area of inquiry within these disorders as well as suggesting the need for further inquiry in relation to both HPD and OCD.

Summary and future directions

Numerous studies have examined the family environment within the context of paediatric OCD. The literature reviewed in this study has demonstrated a strong relationship between paediatric OCD and parental mental health (e.g., increased symptoms of anxiety, stress, depression), parenting practices (e.g., enhanced responsibility, low child interaction), family dynamics (e.g., family strain and distress), family involvement with disorder symptoms (e.g., accommodation and antagonistic responses), and family emotional climate (e.g., expressed emotion, parental guilt, worry, and anger). In contrast, however, studies examining family functioning among the remaining OCRDs have been scarce. While evidence suggests a link between paediatric HPD and parental mental health (e.g., increased symptoms of depression and stress), parenting practices (e.g., limited independence), family dynamics (e.g., low family cohesion, family violence, and distress), and family emotional climate (e.g., family aggression and low family expressiveness), research in this area – with the lone exception of family dynamics – significantly lags behind that of OCD. Yet despite this dearth of research, the sheer number of studies to examine the family environment in paediatric HPD dwarfs the total number of studies to examine this domain in relation to BDD, hoarding, or skin picking disorder ($n = 1$). Collectively, the research presented in this review supports the need for further research in this area, particularly in relation to those members of the OCRD cluster lacking sufficient scientific inquiry to this point.

The domains of family environment reviewed in this study indicate specific family functioning deficits that may serve as aetiological and/or maintaining factors in paediatric OCRDs. The recognition of these deficits may prove beneficial in developing or bolstering preventative and/or therapeutic interventions. For example, with respect to paediatric OCD, approximately 40% of youths ultimately do not respond to treatment (Pediatric OCD Treatment Study Team, 2004; Reynolds *et al.*, 2013). Considering the relationship between poor family environment and poor treatment outcome (Ginsburg, Kingery, Drake, & Grados, 2008), familial dysfunction may, in part, contribute to treatment non-response. Interestingly, Peris, Sugar *et al.* (2012) compared OCD treatment outcome between youths with high and low levels of dysfunction (i.e., parental blame, family conflict, and low family cohesion) within the family environment and found that 93% of youths whose family was characterized as exhibiting low levels of dysfunction responded to treatment, whereas only 10% of youths with high levels of family dysfunction responded to treatment. What is more, Merlo *et al.* (2009) studied family accommodation in OCD treatment outcome and found that a decrease in family accommodation was positively associated with treatment outcome. Consequently, an increased understanding of those key family variables linked to treatment response and non-response will provide an avenue for tailoring or developing more efficacious interventions. For example, targeted (i.e., designed to remediate those areas within the family environment exerting the most potent response to treatment) family-based cognitive behavioural therapy interventions may be particularly beneficial and is supported by extant work utilizing

family-based approaches to treatment (Barrett, Healy-Farrell, & March, 2004; Freeman *et al.*, 2008; Peris & Piacentini, 2013; Storch, Lehmkuhl *et al.*, 2010) although current treatment trends are more broad based (i.e., less targeted) in nature. At the very least, including family members in paediatric OCD treatment may prove to be a useful intermediary step in addressing this topic. While research of this nature may not be far off with respect to youth OCD research, the scant literature among all other OCDs reiterates the importance of gaining a better understanding of family processes at work in disorders such as HPD, BDD, hoarding, and skin picking disorder.

Although the literature reviewed in this study suggests beneficial treatment and preventative implications – most prominently displayed in relation to paediatric OCD – there are still several limitations to the available research that are worthy of note. First, past studies are limited by cross-sectional research designs which, consequently, are unable to distinguish family domains as either aetiological or maintaining (or both) in nature. Specific classification of the domains as either aetiological or maintaining factors would benefit the development of treatment and preventative measures by identifying the appropriate time period (e.g., before or after diagnosis) in which various family behaviours should be targeted and highlights the need for more prospective, family-based research. Second, current OCD research lacks diversity (e.g., ethnicity, culture, socioeconomic status). The majority of studies in this article have focused on middle-class Caucasian families, limiting the generalizability of study findings to diverse populations. Evidence in the anxiety literature indicates that parenting practices may affect youths differently depending on ethnicity and culture of the family (Luis, Varela, & Moore, 2008). It is possible that family environments in paediatric OCDs may also differ depending on demographic factors such as ethnicity and socio-economic status. Future studies should obtain more diverse samples to examine these possibilities and the extent to which the family environment domains highlighted in this article are more, less, or equivocally relevant to these populations. Third, there exists a striking lack of variability in the provision of family environment perceptions. Perceptions of family functioning were predominantly provided by mothers of youths with an OCD, limiting the investigation of the roles and perceptions of other family members (e.g., fathers, siblings) in the family environment and must be addressed in future research. Similarly, with the exception of a few studies (Barrett *et al.*, 2002; Farrell *et al.*, 2013), domains in relation to the family environment have primarily been assessed using self-report measures which, inherently, can be susceptible to limitations of self-serving biases and distortions of self-perception. Inclusion of observational methods can alleviate these limitations by corroborating information from self-reports and providing researchers a first-hand account of family behaviours.

Perhaps the most obvious limitation to the current body of literature is the dearth of empirical studies examining family environment within the context of a paediatric OCD other than OCD and, to a much lesser extent, HPD. For example, family functioning research relevant to paediatric SPD and hoarding is non-existent. While a likely initial explanation for this dearth of research – at least as it pertains to hoarding and SPD – is the new inclusion of these disorders within DSM V, neither SPD, hoarding, HPD, nor BDD are new clinical phenomena among youths and warrants further inquiry. Nevertheless, the general lack of research available in regard to these conditions is disheartening, particularly given the strong evidence for the impact of the family environment within paediatric OCD. Considering this possibility, it is not only important that future studies continue research in the reviewed family domains, but also that they seek to include family assessment of all OCDs, which will help identify both distinguishing and common family deficits among the diagnoses and foster the transdiagnostic research espoused by the RDoC initiative and many funding agencies. In summation, there is much work left to be

carried out in regard to fully understanding the role of the family environment in paediatric OCRDs. With the help of continued research in this domain, science can obtain a clearer picture of the family environment in paediatric OCRDs and, ultimately, inform the development of more efficacious prophylactic and therapeutic interventions.

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