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Children's Naive Concepts of OCD and How They Are Affected by Biomedical Versus Cognitive Behavioural Psychoeducation

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Background: How we conceptualize mental health conditions is important as it impacts on a wide range of mediators of treatment outcome. We do not know how children intuitively conceptualize obsessive-compulsive disorder (OCD), nor do we know the relative impact of biomedical or cognitive behavioural conceptual explanations, yet both are being widely used in psychoeducation for children with OCD. **Aims:** This study identified children's naive concepts of OCD, and the comparative impact of biomedical versus cognitive behavioural psychoeducation on perceived prognosis. **Method:** A within- and between-subjects experimental design was used. After watching a video of a young person describing their OCD, 202 children completed a questionnaire examining their concepts of the condition. They repeated the questionnaire following a second equivalent video, this time preceded by either biomedical or cognitive behavioural psychoeducation. **Results:** Participants' naive concepts of OCD reflected predominant models of OCD in healthcare. Even at the minimal dose of psychoeducation, participants' conceptualizations of OCD changed. Prior exposure to OCD resulted in a stronger alignment with the biomedical model. Exposure to biomedical psychoeducation resulted in participants predicting a slower recovery with less chance of complete remission. **Conclusion:** Psychoeducation for childhood OCD is impactful. Despite its wide use by clinicians and mental health services, biomedical psychoeducation appears to have deleterious effects. Children's concepts of OCD merit attention but caution should be applied in how they are targeted.

Keywords: children and adolescents, obsessive-compulsive disorder, causal attributions, CBT

Introduction

Lifetime prevalence of obsessive-compulsive disorder (OCD) is thought to be between 1 and 3% of the population, with peak age of onset during childhood (Kessler et al., 2007). OCD has a significant and negative effect on a child's psycho-social development (Valderhaug and Ivarsson, 2005) and if untreated frequently continues into adulthood with increasingly

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detrimental effects (Stewart et al., 2004). Cognitive behavioural treatment (CBT) of OCD has demonstrated greatest efficacy (Öst et al., 2016) and is favoured in many health settings (see NICE guidelines; NICE, 2017). Nonetheless, a significant number of young people receiving CBT for OCD do not achieve full remission and many more delay or completely avoid accessing treatment (Eddy et al., 2004) suggesting significant room for improvement.

CBT for childhood OCD typically involves assessment, psychoeducation, formulation, cognitive restructuring and behavioural experiments involving exposure and response prevention. With recognition of the need for improvement, there is increasing call to examine different elements of treatment separately in order to identify the most active ingredients in achieving clinical change (Freeman et al., 2007). Psychoeducation is a common component of treatments for mental health conditions both within and beyond CBT that aims to enhance clients' insight, align them with available treatments, and in turn improve adherence. Whilst psychoeducation more broadly has been found to reduce the occurrence of mental health issues and help with their amelioration when they do occur (Donker et al., 2009), its impact is yet to be explored specifically with childhood OCD.

Psychoeducation offered to children with OCD tends towards either a biomedical perspective (associated with organic factors/disease or a neurological disorder) or a cognitive behavioural perspective (associated with stable patterns of thinking or erroneous thoughts). This is exemplified by the two leading treatment manuals (March and Mulle, 1998; and Waite and Williams, 2009) which sit in contrast with each other; the former advocates a 'neuro-behavioural' explanatory model, and the latter advocates a purely cognitive behavioural explanation.

In contrast to cognitive behavioural models that have highlighted family functioning (Derisley et al., 2005), behavioural conditioning (Meyer, 1966) and cognitive errors (Salkovskis, 1999), research advocating biomedical explanations of OCD has focused on genetics (Taylor, 2011), auto-immune disorder (Gause et al., 2009), neurological deficits (Ahmari et al., 2013) and serotonin abnormalities (Denys, 2006). There is reported to be increasing evidence of biological factors in the aetiology of the disorder (e.g. Taylor, 2011), and it is viewed as de-stigmatizing and non-blaming in comparison with cognitive behavioural models and thus of benefit to the family (March and Mulle, 1998). However, critics of the biomedical model argue that a comprehensive biological model of OCD remains elusive, that it places an unsupported emphasis on pharmacological interventions (Deacon, 2013) and that, in adults at least, it promotes prognostic pessimism in the client (Rimes and Salkovskis, 1998).

In addition to the absence of consensus as to the cause of childhood OCD, less still is known about the *clinical utility* of these explanatory models when offered to children as part of their psychoeducation. This poses a clear dilemma for clinicians; do explanatory models help children with OCD and *which* explanatory model should they offer? In the only related experimental test of this question to date, Lam and Salkovskis (2007) found that depressed/anxious adult clients held a significantly more pessimistic prognosis when exposed to a biomedical causal explanation for panic disorder compared with those who were provided with a psychological explanation.

This clinical dilemma may be particularly pertinent when working with children. Child models of CBT have been criticized for failing to be sufficiently adapted from their genesis with adult populations (Field et al., 2008). Critics have pointed to the distinct variation in how and what information children are able to process. Dynamic periods in a child's cognitive

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development mark a challenge for clinicians in how to explain OCD in a way that it can be understood. Explanations that are inconsistent with prior knowledge are especially powerful triggers for children to engage in learning (Legare et al., 2010) and they are more susceptible to the new explanation if it is assumed that their source is well informed (Robinson and Whitcombe, 2003). Furthermore, where younger children tend to assume there must be one correct explanation, older children (>10 years) become aware of the epistemology of explanations (Kuhn and Franklin, 2006) and it is not until adolescence that the capacity for truly pluralist, relativistic explanations incorporating multiple dimensions are developed (Diamond and Savin-Williams, 2009).

This study used an experimental design allowing the examination of children's naive concepts of OCD *and* the relative impact of the explanatory models that participants were exposed to. Under controlled conditions the impact of two alternative explanations (biomedical and cognitive behavioural) for childhood OCD were compared.

Participants' beliefs in terms of the consequences, timeline, curability, emotional impact, perceived level of understanding, and level of control of OCD were explored in three ways. We first examined children's 'naïve' pre-treatment beliefs about OCD. We then examined how they change under the influence of contrasting models of psychoeducation. Finally we tested for broader explanatory variables that may be impacting on the participants' conceptualizations such as their age, gender, literacy and prior exposure to OCD.

We hypothesized that: (1) participants will become more aligned with the causal explanation provided in the psychoeducation they receive; (2) manipulating children's concepts of the cause of OCD using psychoeducation will have an impact on the prognosis they offer; and (3) biomedical psychoeducation will result in significantly worse prognosis.

Method

Participants

A non-clinical sample was selected in order to examine the naive concepts young people typically have of OCD. Two hundred and four participants were recruited from state-funded junior schools in a large city in Ireland, in areas deemed 'marginally above average affluence' (Central Statistics Office, 2011). Three responses were incomplete, resulting in a sample of 201: 79 boys and 122 girls. Their mean age was 11.54 years ($SD = 31.23$) ranging from 10 to 13 years incorporating the average age of onset of childhood OCD. All participants were required to speak English and have a proficient level of literacy. Twenty-nine participants (14.4%) indicated that they, or someone they knew, may have had OCD.

Procedure

Ethical approval was granted by the University Ethics Committee. The experiment followed a within-subjects and between-groups design (see Fig. 1) and was delivered in a whole-class format. Participants were exposed to a generic emotional wellbeing workshop that had embedded within it an introduction to the use of Likert scales and the experimental procedure.

To establish the participants' naive causal explanations for OCD and to enable a manipulation check, all participants were exposed to two videos of a young person describing their OCD; first

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Experimental condition	n	Video 1	Administration of questionnaire	Manipulation	Video 2	Administration of questionnaire
Condition A Biomedical	n= 64	Video OCD washing		biomedical psychoedeucation	Video OCD checking	
	n= 51	Video OCD checking		biomedical psychoedeucation	Video OCD Washing	
Condition B Cognitive-behavioural psychoeducation	n= 47	Video OCD washing		cognitive-behavioural psychoeducation	Video OCD checking	
	n= 39	Video OCD checking		cognitive-behavioural psychoeducation	Video OCD Washing	

Figure 1. Overview of the experimental procedure.

without an explanation, and then with either a biomedical or cognitive behavioural explanation of OCD. After each video, the *Child Concepts of OCD Questionnaire* was administered. Full electronic copies of the workshops and videos are available on request from the corresponding author.

Experimental manipulation. All participants were exposed to two videos of children describing their OCD. To control for order effects, the videos were of two different children describing variations of OCD (one washing, one checking) and their order was counter-balanced (see Fig. 1). The young people in the videos were actors following a script. Their scripts described typical OCD symptoms as defined by the *Diagnostic and Statistical Manual V* (American Psychiatric Association, 2013) and were equal in length and severity of symptoms (see Table 1). The experimental manipulation was exposure to an explanation for OCD prior to watching the second video. In condition 'A', the explanation was biomedical (drawn from March and Mulle, 1998) and in condition 'B' it was cognitive behavioural (drawn from Waite and Williams, 2009). The explanation was equal in length and strength of assertion and reflected the minimal psychoeducative component advocated by the two approaches (see Table 2).

Measures. Child Concepts of OCD Questionnaire: the questionnaire is an adapted version of the Brief Illness Perceptions Questionnaire (B-IPQ) (Broadbent et al., 2006). The B-IPQ was designed to probe for concepts of illness that have been associated with coping behaviours. Whilst originally developed for the assessment of physical illnesses in adults it is increasingly being used for mental health issues (Petrie et al., 1997) and has also been adapted for the use of lay people reporting an illness concern in another (Figueiras and Alves, 2007). It has been found to have good test–retest reliability, concurrent, and discriminant validity (Broadbent et al., 2006). It has also been found to hold good predictive reliability with item responses showing a significant correlation with coping behaviour engaged in, for example a perceived longer timeline and lower chance of cure has been associated with avoidant coping behaviours (Hagger and Orbell, 2003).

The initial section of the adapted questionnaire gathered demographic details: an identifier, age, prior experience of OCD and gender. In order to provide a manipulation check, section A assessed the perceived cause of the young person's OCD. In an adaptation of the B-IPQ,

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Table 1. Video scripts for young people describing their OCD

Video script 1: OCD checking: '*I've had OCD for a while now and it has just got worse and worse. My OCD gives me scary thoughts that I have left a window or a door open and that something bad could happen to my family, maybe someone could come into the house and attack us. The thoughts make me feel really scared. I can feel my heart racing and my breathing gets quicker. I find it really hard to concentrate on anything until I've done my rituals. I know it's very unlikely anyone would come into the house but the scary thoughts don't go away until I've done my rituals. I end up checking all the doors and windows in the house. Not just once, sometimes I have to go back to the same door 10 or 15 times, it can take ages and stops me getting to bed on time and sometimes I'm late for school. My mum and dad are really worried about me they have arranged for me to go and see my doctor.*'
Video script 2: OCD washing: '*I've had OCD for a while now, over time I think it has got worse and worse. My OCD gives me scary thoughts, that I might catch bad germs and that it might infect my family and they might die. I feel really scared. I can feel my heart racing and my breathing gets quicker. I find it really hard to concentrate on anything until I've done my rituals. I know it's silly and that it's really unlikely they will die but the scary thoughts don't go away until I've done my rituals. I end up washing my hands over and over again 10 of 15 times. It takes up so much time sometimes I don't even play with my friends or get my homework done. My mum and dad are really worried about me, they have arranged for me to go and see my doctor.*'

Table 2. Psychoeducation provided in the experimental manipulation

Biomedical psychoeducation: '*Doctors think that X's OCD is an illness like diabetes or asthma, that affects her brain; they think X's OCD is caused by a short-circuit in her brain a bit like a brain hiccup.*' (video accompanied by small brain icon)
Cognitive behavioural psychoeducation: '*Doctors think that X's OCD is caused by her misunderstanding normal scary thoughts. They say, we all have scary thoughts but people with OCD think their scary thoughts are unusual and that they have to do something about them.*' (video accompanied by small thoughts-bubble icon)

causality was assessed via closed rather than open response items. This adaptation was made to reduce the risk of 'don't know' responses otherwise likely in a sample of this age. Six internal and external factors were incorporated, including those provided in the experimental manipulation. Additional causal factors were drawn from items parallel to those used in the study of parental beliefs regarding the cause of their child's mental health difficulty (Reid et al., 2008).

Items 2 and 10, and 4 and 6, provided the manipulation check. Items 2 and 10 'because she has a brain illness' and 'because she has a short circuit in the brain' were drawn from the language used in the March and Mulle (1998) treatment manual. They probed for a concept of *biomedical* causality associated with fixed organic factors and associated with disease or a neurological disorder. Items 4 and 6 'because she is mistaking normal thoughts as bad' and 'because she does not understand her thoughts' were drawn from the language used in the Waite and Williams (2009) treatment manual; they probed for a concept of *cognitive behavioural* causality associated with stable patterns of thinking or erroneous thoughts. In both cases the

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Table 3. Adaptations to the B-IPQ

Item	Original B-IPQ item	Adaptation
14	'How long do you think your illness will continue?'	'Her OCD will last a long time'
15	'How much control do you feel you have over your illness?'	'She has very little control over her OCD'
16	'How much do you think your treatment can help your illness?'	'She can be totally cured of her OCD'
17	'How much do you experience symptoms from your illness?"'	'She experiences a lot of problems because of her OCD'
18	'How concerned are you about your illness?'	'She is very concerned about her OCD'
19	'How well do you feel you understand your illness?'	'She has a good understanding of her OCD'
20	'How much does your illness affect you emotionally?'	'She is very upset about her OCD'

operative educational components from the respective treatment manuals were maintained, that is OCD being a neurological 'brain' condition or a cognitive difficulty brought about from our 'misunderstanding' of normal thoughts. Items 8 and 12 'because there are lots of arguments at home' and 'because her mum or dad had OCD too' probed for *family factors*, causality associated with conflict in family or parental OCD. Items 1 and 5 'because she is naughty' and 'because she doesn't have any friends' probed *social problems*, causality associated with social adaptation, being disliked or trouble making. Items 3 and 7 'because her mum and dad are nasty' and 'because her mum and dad don't care about her' probed for *trauma*, causality associated with neglect, or abuse; and items 9 and 11 'because she eats too much sugar' and 'because she doesn't eat many vegetables' probed for *dietary problems*, causality associated with a malnourished or unhealthy diet. Each factor was measured via two 5-point Likert questionnaire items to improve internal consistency. These were added together to provide the overall score for each explanation.

Section B assessed the participant's perception of the prognosis for the young person with OCD in the domains identified in the B-IPQ. Participants were asked to rate how strongly they agreed with statements concerning consequences, timeline, control, curability, severity, concern, level of understanding and emotional impact the young person with OCD was experiencing. Items were adapted for use by child populations who were reporting their concepts of OCD in another young person rather than themselves, were changed from questions to statements and reduced from 10 individuated, to five standardized Likert responses. For example, 'How much does your illness affect your life?' on the B-IPQ became item 13 'Her OCD affects her life a lot' on the *Child Concepts of OCD Questionnaire* (see Table 3). A visual analogue scale was added to aid comprehension, with a tick indicating 'I agree a lot', a confused face indicating 'not sure' and a cross indicating 'I really don't agree'.

Mary Immaculate Reading Attainment Test (MICRA-T; Fallon, 2004) is a group administered standardized reading test. Scores were extracted from individual pupil files.

Data preparation. Mean imputations were used for a small number of questionnaires ($n = 8$) that had single incidents of missing data (Ader and Mellenbergh, 2008) and because of the number of *t*-tests necessary for this approach, a Bonferroni correction was applied. In order to

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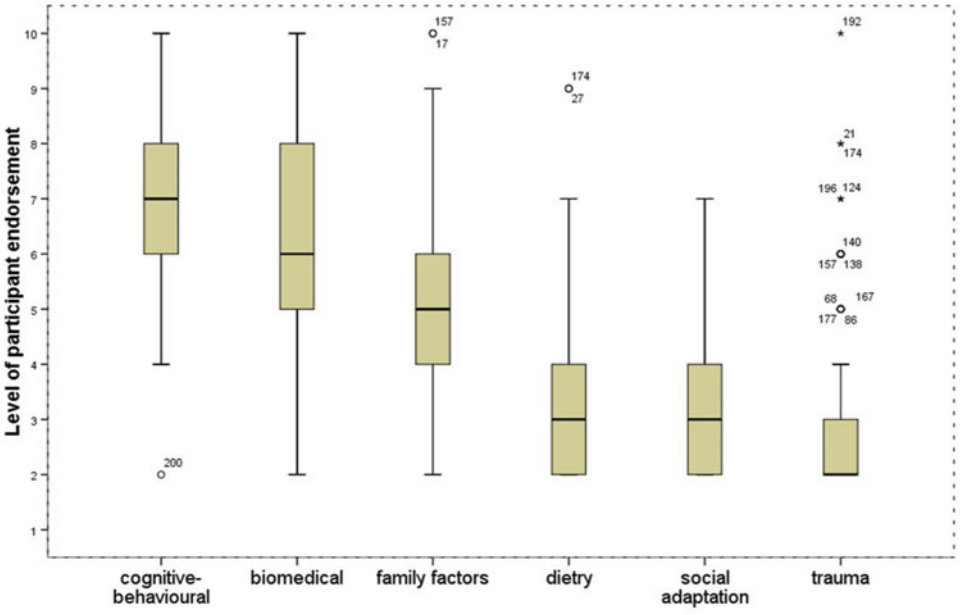

Figure 2. (Colour online) Box plots of participants' naive concepts of OCD.

assess for the magnitude of any difference found, a calculation of effect size was also made using Cohen's *d* calculation (Cohen, 1988).

Results

Participants' naive causal explanations of OCD (pre-manipulation)

Differences between participants' naive explanations for OCD were examined using one-way, repeated measures ANOVA. A Greenhouse-Geisser correction was applied to account for a violation of the assumption of sphericity ($\varepsilon = .81$). There were significant differences with a large effect size found between scores for the various explanatory models ($F\,[1{,}200] = 6475.50$, $p = <.001$, $\eta^2 = .97$.) When sequenced from most to least endorsed, cognitive behavioural explanations were the most popular, followed by biomedical explanations and family factors. Diet, trauma and social adaptation scored below '5', indicating that participants consistently rejected or were unsure about their causality in relation to childhood OCD. Differences between level of endorsement of causal factors were significant ($p < .001$) in all cases other than trauma and social adaptation ($p = .187$). Table 3 and Fig. 2 provide means, standard deviations, outliers and confidence intervals set at 95%.

Explanatory variables for participants' naive causal explanations of OCD

One-way ANOVAs and bivariate correlations were conducted to assess for relationships between demographic factors and participants' naive causal explanations for OCD. No

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differences between male and female participants were found. Participants who reported prior exposure ($n = 29$) were significantly more likely than their peers to endorse a biological causal explanation with a small to medium effect size; F [1,199] = 3.96, $p = .048$, $d = 0.38$. No correlations were found between participants' age, gender, or level of literacy and their naive causal explanations for OCD.

Changes in children's concepts of OCD after receiving psychoeducation

To assess whether the cognitive behavioural or biomedical psychoeducation impacted on each participant's explanation of OCD, a mean explanatory change score was calculated. Differences between pre- and post-manipulation were then examined using paired sample *t*-tests, per condition. Exposure to both biomedical and cognitive behavioural causal explanations resulted in significant increases in their relative domains of change, with medium to large effect sizes (biomedical: t [200] = –6.42, $p = < .0000$, $d = 1.48$; cognitive behavioural: t [200] = −1.95, $p = .0000$, $d = .29$). An increase in endorsement of a cognitive behavioural explanation appeared to result in a decrease in a biomedical explanation (–0.49, $p = .0105$, $d = .28$) and vice versa (–0.46, $p = <.0097$, $d = .29$) whilst all other domains remained largely stable. These results suggest that the manipulations were effective; when participants were told the cause of OCD was biomedical they were significantly more likely to endorse biomedical explanations, and so forth. No relationships between causal explanation change and demographic factors were found. Mean pre- and post-manipulation scores can be found in Table 4. Change scores, their level of significance and the effect size can be found in Table 5.

Impact of cognitive behavioural and biomedical psychoeducation on perceived prognosis

To assess how the psychoeducation impacted on the prognosis participants offered, pre- and post-manipulation change scores were calculated per condition and then compared across conditions. Firstly, comparisons were made between overall prognosis and then per domain of change (e.g. *severity*, *consequence*, *emotional impact*, etc.)

The *overall prognosis* was a composite variable combining items 13 to 20 on the adapted B-IPQ. Independent sample *t*-tests revealed small but significant differences between conditions (t [190.21] = 2.79 $p = .006$, $d = 0.15$). Biomedical explanations appeared to consistently worsen participants' prognosis for the young person with OCD, but internal reliability for the composite was deemed poor ($\alpha = .36$), indicating that this child sample did not view these domains as inter-related.

For the domains of *severity*, *consequences*, *emotional impact*, *control* and *concern*, participants on average 'agreed' or 'strongly agreed' that the young person had lots of problems, that were affecting her life a lot, that she was very upset and concerned about her condition, and over which she had very little control. For the domain of *understanding* participants were 'unsure' or 'disagreed' that she had a good understanding of her condition. None of these domains changed significantly post-manipulation.

For the *duration* domain participants were 'unsure' or 'agreed' that the young person was going to be unwell for a long time. Paired sample *t*-tests revealed significant changes within the biomedical condition with medium to large effect size post-manipulation (t [110] = –3.35, $p = .0011$, $d = .43$). Participants within the cognitive behavioural condition demonstrated no significant change. Change scores were compared between the two conditions using

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Table 4. Means (standard deviations) for the two conditions

	Condition A Biomedical		Condition B Cognitive behavioural	
Demographics				
Sample size	111		90	
Mean age (years)	11.50 (0.56)		11.61 (0.64)	
Male	53	47.7%	26	28.8%
Female	58	52.2%	64	71.1%
Prior OCD	19	9.4%	10	4.9%
MICRA-T	105.90 (15.43)		106.3 (14.85)	
Perceived causality	**Pre**	**Post**	**Pre**	**Post**
Biomedical	6.48 (1.63)	8.74 (1.43)	6.17 (1.57)	5.68 (1.78)
Cognitive behavioural	7.25 (1.45)	6.79 (1.74)	7.38 (1.50)	8.56 (1.68)
Family factors	5.05 (1.59)	4.82 (1.65)	5.09 (1.63)	4.82 (1.62)
Social problems	3.02 (1.18)	2.96 (1.21)	3.36 (1.36)	3.42 (1.47)
Trauma	2.84 (1.19)	2.91 (1.40)	2.92 (1.60)	3.00 (1.46)
Dietary problems	3.50 (1.75)	3.23 (1.51)	3.43 (1.46)	3.53 (1.69)
Perceived prognosis	**Pre**	**Post**	**Pre**	**Post**
Consequences	4.63 (0.77)	4.50 (0.85)	4.74 (0.59)	4.64 (0.68)
Duration	3.54 (0.59)	3.87 (0.93)	3.61 (0.71)	3.59 (0.82)
Control	4.14 (0.78)	4.27 (0.85)	4.29 (0.84)	4.21 (0.86)
Curability	2.89 (0.84)	3.46 (1.06)	2.99 (1.00)	2.94 (1.02)
Severity	4.33 (0.85)	4.44 (0.71)	4.29 (0.76)	4.50 (0.64)
Concern	4.39 (0.86)	4.36 (0.95)	4.47 (0.62)	4.21 (0.95)
Understanding	2.73 (1.08)	2.75 (1.04)	2.66 (1.13)	2.59 (1.22)
Emotional impact	4.46 (0.94)	4.33 (1.75)	4.46 (0.84)	4.48 (0.74)
Prognosis (composite)	31.13 (3.29)	31.99 (3.51)	31.51 (3.11)	31.12 (2.64)

independent sample *t*-tests. Although not significant at the corrected *p* value (.005), differences between the conditions were maintained, with medium to large effect size (t [198.95] = –2.64, p = .008, d = .35). This p value is marginally short of the critical level set for statistical significance; however, this is probably due to the high baseline endorsement of cognitive behavioural explanatory beliefs (and therefore lower change score for that condition). Given this consideration, and the conservative nature of the Bonferroni correction, these results suggest that the participants exposed to a biomedical psychoeducation expected that the young person would be unwell for longer than those exposed to cognitive behavioural psychoeducation.

For the *curability* domain participants appeared 'unsure' or to 'disagree' that she could be totally cured of her OCD. Paired sample *t*-tests revealed significant changes in the biomedical condition post-manipulation with large effect size (t [110] = –4.56, p = <.0000, d = .60). Participants within the cognitive behavioural condition demonstrated no significant change. When comparisons were made between conditions using independent sample *t*-tests, this difference was maintained with medium to large effect size (t [199] = 3.39, p = .0008, d = .41). When exposed to a biomedical causal explanation, participants predicted that the young person had less chance of achieving remission.

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Table 5. Mean change scores, standard deviations, significance and effect sizes by condition

	Condition A Biomedical			Condition B Cognitive behavioural		
	Change	*p*	*d*	Change	*p*	*d*
Perceived causality						
Biomedical	**+2.26 (1.86)**	**.0000**	**1.48**	–0.49 (1.78)	.0105	0.29
Cognitive behavioural	–0.46 (1.84)	.0097	0.28	**+1.18 (1.80)**	**.0000**	**0.74**
Family factors	–0.59 (1.75)	.0478	0.23	–0.27 (1.53)	.1028	0.16
Social problems	–0.05 (1.41)	.6891	0.05	+0.07 (1.33)	.6358	0.03
Trauma	+0.07 (1.40)	.5885	0.05	+0.78 (1.78)	.6797	0.05
Dietary problems	–0.27 (1.41)	.0465	0.17	+0.10 (1.51)	.5306	0.06
Perceived prognosis						
Consequences	+0.13 (0.96)	.1709	0.16	–0.10 (0.79)	.2353	0.16
Duration	**+0.33 (1.05)**	**.0011**	**0.43**	–0.02 (0.86)	.8071	0.02
Control	+0.13 (1.01)	.1911	0.16	–0.08 (1.05)	.4848	0.09
Curabilty	**+0.57 (1.31)**	**.0000**	**0.60**	–0.04 (1.23)	.7318	0.05
Severity	+0.11 (0.90)	.2073	0.14	+0.20 (0.89)	.0356	0.30
Concern	–0.03 (1.12)	.7990	0.03	–0.26 (0.99)	.0162	0.33
Understanding	+0.01 (1.12)	.9324	0.02	–0.07 (1.29)	.6246	0.06
Emotional impact	–0.13 (1.05)	.2101	0.10	–0.02 (0.85)	.8042	0.03
Prognosis (overall)	+0.86 (3.17)	.0000	0.17	–0.38 (3.10)	.0000	0.14

Values that are both significant and of a medium to large effect size are given in bold.

Discussion

This is the first study of its kind examining children's concepts of OCD. It has identified children's naive concepts of OCD and compared how they changed under the effect of biomedical versus cognitive behavioural psychoeducation. There is research supporting both models, but we do not know about their *clinical utility* when provided in psychoeducation to children.

There is reasonable evidence to support all three hypotheses; with psychoeducation the participants became more aligned with the explanation provided, the psychoeducation impacted on the prognosis they offered and the prognosis offered was comparably worse for those offered biomedically orientated psychoeducation. The study provides some useful findings that could have direct implications for clinical practice.

Children's naive concepts of OCD appear to reflect the predominant models prescribed by mental health professionals

Pre-manipulation the children in this study were most likely to endorse cognitive behavioural then biomedical explanatory models for OCD. Generally speaking, these are the two most popular models held in lay adult populations (Schomerus et al., 2012); however, this sample of children contrasted in their prioritization of cognitive behavioural over biomedical explanations. Arguably this reflects that, as with other internalizing difficulties, cognitive behavioural models provide a better 'fit' than biomedical models with children's intuitive understanding of OCD (Fox et al., 2010). Interestingly, when participants increased their

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endorsement of a biomedical explanation, they reduced their endorsement of a cognitive behavioural explanation and vice versa. This probably reflects the lingering effects of Cartesian dualism in healthcare, whereby holding OCD as both a mind *and* body problem feels as uncomfortable for children as it does for some clinicians (Duncan, 2000). From a cognitive behavioural perspective, these findings are largely encouraging; shared conceptualizations between clinician and client are seen to positively impact on treatment outcomes (Horvath and Symonds, 1991).

Prior exposure to OCD appears to impact on children's conceptualizations

Although a small number ($n = 29$), children with prior exposure to OCD were found to be more likely than their peers to endorse biomedical explanations. Despite the recent growth of cognitive behavioural provision, the biomedical model continues to dominate service provision (Harland et al., 2009) and media portrayal (Lewison et al., 2012). Under these circumstances personal experience or proximity to another with OCD is likely to increase a child's contact with, and thus endorsement of, biomedical causal explanations. Alternatively it could reflect children's desire to explain internalizing difficulties as, in some way, outside of the control of the individual (Goossens et al., 2002) If so, it may provide support for the notion that biomedical explanations can help reduce blame in the family (March and Mulle, 1998).

Children appeared receptive to psychoeducative input, even at the minimal dose

Participants' favoured naive explanations demonstrated greatest change post-manipulation. This suggests that even relatively strongly held concepts of OCD are amenable to change during childhood. Research in the developmental psychology literature supports this finding, with children capable of abrupt change dependent upon the source of information (Robinson and Whitcombe, 2003) and the initial level of variability in the child's conceptualizations (Alibali, 1999). Typically periods of conceptual transition are marked by increased variability but this was not found in this study. Causal factors other than biomedical/cognitive behavioural remained fairly stable post-manipulation. This highlights both the potential strength and weakness of clinicians providing children with explanations for their difficulties; they are both receptive and amenable to psychoeducation, but they are likely to assimilate explanations, regardless of their utility and potentially to the exclusion of other plausible explanations. This places an increased burden of responsibility on the clinician.

Children's concepts of illness are less sophisticated than adults

In adult populations, domains of illness have been found to be inter-related (Petrie et al., 1997). For example, if an illness is seen to have severe consequences, it is typically seen to have a longer timeline and lower curability. Awareness of these relationships has enabled clinicians to target specific maladaptive beliefs concerning prognosis and in turn improve the client's *overall* perception of their illness and their coping behaviours. In this study the participants were clearly linking cause and aspects of prognosis but relationships between the domains of prognosis alone were weak. This probably reflects the participants' developmental stage.

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'Psychological essentialism', the ability to discern underlying relationships between concepts, is seen to develop with a child's age (Gelman, 2004). From a clinical perspective, this highlights an important area for assessment and intervention with children; how do they understand what they are experiencing and what relationships, if any, do they have between the domains of their perceived prognosis? It is hypothesized that, as in adult populations, helping the child to understand the inter-relation of their concepts of OCD and targeting maladaptive prognostic beliefs may aid recovery.

Being provided with biomedical psychoeducation appears to promote prognostic pessimism

Exposure to biomedical psychoeducation resulted in children predicting a worse prognosis for the young person with OCD; participants predicted being ill for longer with less of a chance of cure. This replicates prior studies in adult populations for different disorders (e.g. Lam and Salkovskis, 2007). It is concerning as negative predictions of cure and timeline are systematically associated with avoidant coping behaviours (Baines and Wittkowski, 2013; Hagger and Orbell, 2003). It has been posited that biomedical explanations promote pessimism by locating the problem and (therefore the solution) in genetics or brain functioning – domains that are typically outside of the conscious control of the individual (Deacon, 2013). Future research may benefit from examining this proposition directly.

Age and gender were not found to impact on children's conceptualisations

Typically, children are found to have increasingly complex and pluralistic causal explanations for behaviour with an increasing emphasis on external drivers such as parenting or life experiences for mental health difficulties (Hennessy and Heary, 2009; Maas et al., 1978). The failure to identify strong demographic trends in this research may reflect a type II error, with a relatively narrow range of ages and no direct examination of variability within participants' responses. A replication of this study using a broader age range and examining variability in participant responses is warranted.

Study limitations

There are several limitations that should be acknowledged when considering the current findings:

The use of a simple stimuli. The stimuli provided in the manipulation are selected verbatim from two of the leading and contrasting manuals in the treatment of OCD and help delineate the differential effect of the two approaches. However, whilst providing a good analogy for cognitive behavioural and biomedical approaches, they are unlikely to reflect the complexity of providing psychoeducation in clinical practice. For example, many clinicians would adopt a bio-psychosocial approach when providing psychoeducation to young people with OCD (Winters et al., 2007). Comparisons with a control group who have received treatment for OCD may help answer some of these questions.

Comparability of language used across conditions. Whilst drawn directly from treatment manuals and matched on word count and strength of assertion, there could have been differences in the conceptual difficulty of the psychoeducation provided in the two conditions. A further

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potential confound was the adaptations made to the B-IPQ. They were designed to increase accessibility to the child sample and to provide a 'manipulation check'. However, they must also be considered as a threat to the comparability of the two conditions. The items in the *Child Concepts of OCD Questionnaire* probing for biomedical conceptualization are quoted verbatim from the manipulation, whereas one of the cognitive behavioural items used the word 'bad' rather than 'unusual' as prescribed in the manipulation. Future studies may want to avoid this potential confound by ensuring that the language is consistent and that the adaptations are of equal weight across both conditions.

The use of a five-point Likert scale may also have limited the strength of the findings. In a number of the domains that demonstrated no significant change (e.g. consequences, control, emotional impact) many of the participants endorsed a maximal 'strongly agree' pre-manipulation, leaving them little room to move in the event that their views became stronger post-manipulation. This could be circumvented with an analogue visual scale in future studies that could provide superior metrical characteristics.

Generalizabilty. It is important to note that how we conceptualize an illness is influenced by the prevailing views within the culture in which we exist (Cameron et al., 2003). The participants used in this study were predominantly white and of a 'above average' socio-economic status. They are likely to have had prior exposure to cognitive behavioural and biomedical conceptualizations of mental health issues as they tend to predominate in Irish mental health services. However, prevailing views on mental health conditions and their treatment vary from culture to culture. For example, what of more collectivistic cultures where causality is often bound in relationships (Crystal, 2000) or cultures such as the US where biomedical conceptualizations and pharmacotherapy are more widely prescribed (Deacon, 2013). These factors make it difficult to generalize the findings to broader populations and need to be considered in any future research in this field. In particular, future investigations may benefit from exploring the impact of varied models of psychoeducation for a *clinical* population of varied ethnic backgrounds and cultures.

Notwithstanding these limitations, our preliminary findings throw light on some important questions for clinicians working with childhood OCD. It appears that children are receptive to psychoeducation even at the minimal dose and importantly, it changes the way they view the difficulty they are experiencing. In adult populations, these views have been seen to influence coping behaviours and ultimately treatment outcomes and therefore merit greater attention in the child literature. Biomedical causal explanations for OCD predominate (e.g. RCP, OCD-UK, NIH) yet the current findings call the utility of this practice into question. Whilst further research is required, mental health services and institutions may want to consider a more neutral approach. Comparatively this research suggests that a cognitive behavioural causal explanation will improve the child's perception of their prognosis. Individual clinicians may want to examine children's pre-existing concepts of OCD, its cause and consequences. If causal explanations are offered they may want to be provided tentatively and the consequence of any explanation explored carefully.

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