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A systematic review of the role of parents in the development of anxious cognitions in children

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ABSTRACT

Anxious cognitions and parental behavior are important in the development of child anxiety. The current review aims to appraise the literature on the relationship between parental factors and chid anxious cognitions. Online database searches of PsycInfo, Scopus, ProQuest Dissertations and Web of Science were systematically searched using key terms related to 'parent', 'child', 'anxiety' and 'cognitions'. Included studies (N = 13) were quality assessed and study findings were appraised in line with cognitive behavioral frameworks of the parental pathways to the development of anxious cognitions in children. Reviewed studies confirmed that parental factors have a role in the development of their children's anxious cognitions by modelling fearful responses, reducing their child's autonomy, and indirectly via their own expectations about their child. Limitations of the literature are considered, including issues of measurement. Future research should consider multi-modal assessment of parental factors and examine parental behavior and child anxious cognitions in the context of real-life threatening events.

1. Introduction

Anxiety affects as many as 10% of children and adolescents at any one time (Copeland, Angold, Shanahan, & Costello, 2014) and can lead to significant problems in child and family functioning (Remmerswaal, Muris, & Huijding, 2015). Anxiety disorders run in families; children of parents with anxiety disorders are almost four times more likely to develop an anxiety disorder than children who do not have a parent who experiences anxiety (Micco & Ehrenreich, 2008). Waters, Zimmer-Gembeck, and Farrell, (2012) suggest that parental anxiety is a significant risk factor for child anxiety and research has shown high incident rates of anxiety in the parents of anxious children. Cooper, Fearn, Willetts, Seabrook, and Parkinson, (2006) compared the rate of psychiatric disorders in parents of children with an anxiety disorder and parents of control children. A significantly greater proportion of mothers of anxious children met criteria for a current anxiety disorder themselves, compared to controls. A greater proportion of mothers and fathers of anxious children met criteria for lifetime diagnoses of an anxiety disorder, compared to controls. Eley and Gregory (2004) have estimated that genetic heritability accounts for up to 50% of the variance in childhood anxiety; therefore, the environment is considered to be of equal importance in the development of childhood anxiety, within which parents are considered to play a significant part (Podina, Mogoase, & Dobrean, 2013).

Previous psychological theory and studies have described two main behavioral pathways through which parents influence the development of anxiety in their child: by modelling a fear response, and through overprotective rearing behavior. Firstly, the application of Social Learning Theory (Bandura, 1971) suggests that children imitate fearful behavior modelled by their parents. de Rosnay, Cooper, Tsigaras, and Murray, (2006) demonstrated that children displayed higher levels of fear when faced with a stranger if their mother had modelled fearful behavior beforehand, in comparison to children of mothers who did not model fearful behavior. Secondly, parental rearing behavior may influence the development of childhood anxiety. High levels of parental over-control, characterized by excessive monitoring, discouragement of autonomy and high levels of intrusion (Bögels & Brechman-Toussant, 2006), is the most consistent parental rearing predictor of childhood anxiety (Ballash, Leyfer, Buckley, & Woodruff-Borden, 2006; McLeod, Wood, & Weisz, 2007; Murray, Cresswell, & Cooper, 2009; Wood, McLeod, Sigman, Hwang, & Chu, 2003). In their meta-analysis, Van der Bruggen, Stams, and Bögels, (2008) reported a medium overall effect size for the relationship between parental control and childhood anxiety. In a review of the literature, Chorpita and Barlow (1998) concluded that children who have over-controlling parents, and lack the granting of autonomy, are more likely to develop a cognitive style of

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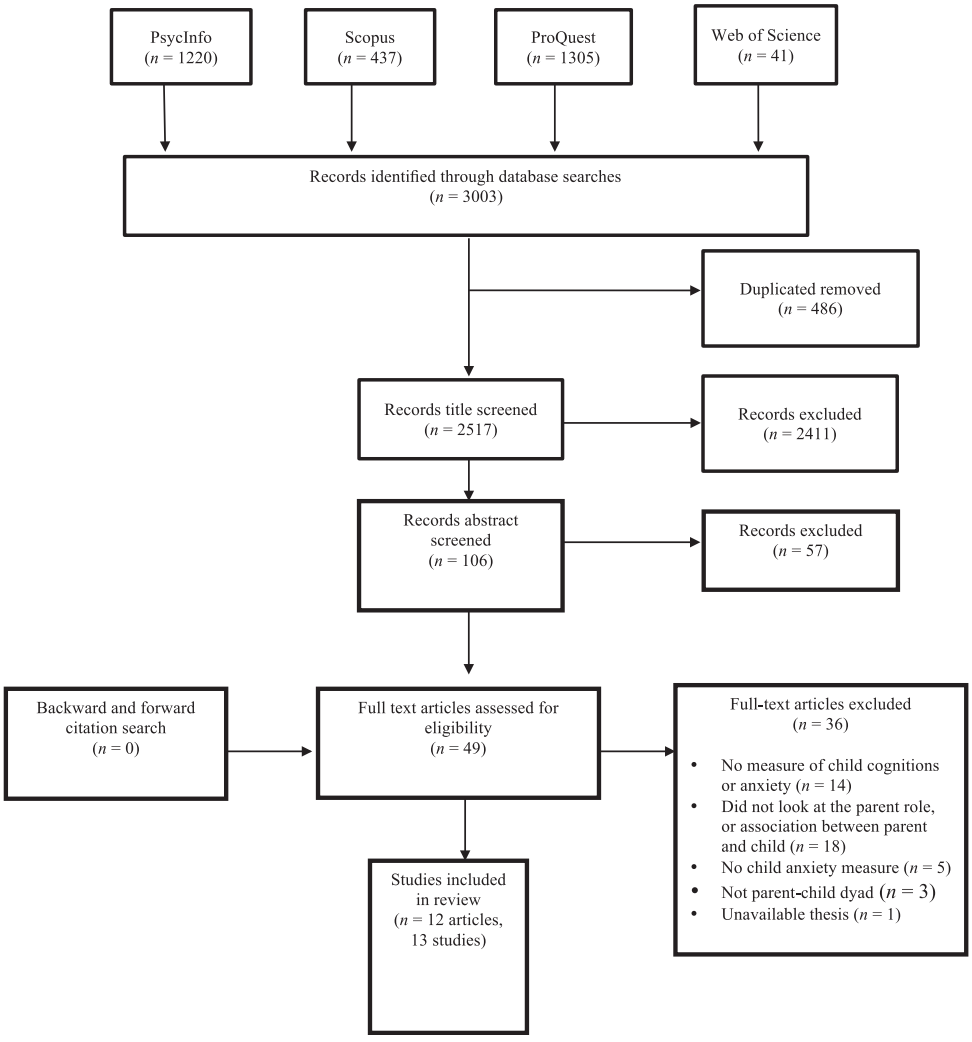

Fig. 1. PRISMA diagram of search process.

interpreting their environment as threatening, and out of their control.

Cognitive-behavioral theories of childhood anxiety suggest that these parental behavior pathways contribute to the transmission of anxious cognitions to the child, such as biases toward threat interpretations (Bögels & Zigterman, 2000; Muris, Rapee, Meesters, Schouten, & Greers, 2003) and underestimation of coping ability (Bögels, van Dongen, & Muris, 2003; Micco & Ehrenreich, 2008) which in turn contribute to the development of anxiety. Creswell, Cooper, and Murray, (2010) presented a cognitive-behavioral framework that specifically describes the role of parental factors in the intergenerational transmission of anxious cognitions. Within this framework, parents' own anxious cognitions directly influence their behavior through modelling of a fearful response (e.g. screaming when they see a spider), or by directly communicating fearful information (e.g. telling their child that spiders are dangerous). Parents' anxious cognitions also influence their expectations of their child's ability to cope, which leads to over-protective and over-controlling rearing behavior, including encouragement to avoid feared situations and the direct verbalisation of potential threats (Hudson & Rapee, 2004). In this way, an anxious cognitive style may be learned by the child, contributing to the development and maintenance of anxiety. Ultimately, parents' expectations are reinforced by their experience of parenting an anxious child, resulting in a feedback cycle. In support of the pathways proposed within this cognitive-behavioral framework, Creswell and O'Connor (2006) reported that mothers who perceived the world as threatening and felt unable to cope were more likely to expect their children to respond in the same way. Creswell, O'Connor, and Brewin, (2008) demonstrated that these negative expectations influence parenting behavior: Parents who were given negative expectations about how their child would perform in completing a set of puzzles, were less likely to allow their child to complete the task independently (displaying more involvement) compared to parents who were given positive expectations of their child's performance.

In order to assess whether the cognitive-behavioral framework proposed by Creswell et al. (2010) is useful for understanding how parents influence the development of anxious cognitions in children, it is critical that the current evidence is reviewed. This systematic review aims to synthesise research evidence examining the role of parent expectations and behavior in the development of child anxious cognitions. Furthermore, this review aims to summarise gaps and limitations of the body of work to date, in order to provide clear recommendations for advancing quality research in this field. Eligible studies will examine parental behavior and measure child anxious cognitions, including internal thinking styles that are biased to interpreting threat, interpreting situations negatively and underestimating ability to cope (Bögels et al., 2003). We will present a narrative review of the literature findings according to the three main pathways proposed by cognitive-behavioral theories of childhood anxiety (Creswell et al., 2010; Hudson & Rapee, 2004): the influence of parent modelling of a fear response (verbal and non-verbal), the influence of parent expectations of the child and rearing behavior (lack of autonomy granting). The limitations of the current evidence and future directions for research to inform theory

Table 1
Study characteristics of included studies.

Author(s) and year, country	Sample description	Child age range (mean)	Parent role examined, method	Child anxiety measure	Child cognitions measure	Quality rating (0-16)
Becker and Ginsburg (2011), United States	75 mother-child dyads; community and anxious mothers	6-14 (9.03)	Autonomy granting Modelling non-verbal fearful behavior	Children asked to rate anxiety on a scale 0-8	Children given 3 questions and asked to rate on a scale 1-5	11
Blossom et al. (2013) United States	488 parent-child dyads; clinical	7-17 (10.69)	Parent expectation	SCARED-C SCARED-P	ASQ	13
Burnstein and Ginsburg (2010), United States	25 parent-child dyads (13 mothers, 12 fathers); community	8-12 (9.24)	Modelling non-verbal fearful behavior	SCARED-P STAIC	C-FAT	12
Creswell et al. (2011), United Kingdom	110 parent-child dyads (103 mothers, 4 fathers); community	5-9 (longitudinal)	Parent expectation	10 item measure adapted from items on CBCL and ARBQ	ASQ	9
Fliek et al. (2017), The Netherlands	258 parent-child dyads (199 mothers, 117 fathers); community	7-12 (9.52)	Modelling verbal fear response Modelling of non-verbal fearful behavior	SCARED-C	ASQ	12
Lønfeldt et al. (2017)	188 mother-child dyads; community	7-12 (10.01)	Rearing: Overinvolvement Control (MCQ)	RCADS	MCQ-30	13
Micco and Ehrenreich (2008), United States	80 mother-child dyads; mixed clinical and community	7-14 (10.65)	Parent expectation	RCADS ADIS-C	CARBQ	13
Muris et al. (2010), The Netherlands	88 parent-child dyads (72 mothers, 16 fathers); community	8-13 (10.28)	Modelling verbal fear response	FSSC-R	FBQ	14
Ooi et al. (2015), United Kingdom	50 parent-child dyads (45 mothers, 5 fathers); community	2.7 -5.8 (4)	Modelling verbal fear response	PAS-R	ASQ	11
Remmerswaal et al. (2015), The Netherlands	122 mother-child dyads; community	8-13 (10.33)	Modelling verbal fear response	FSSC-R	FBQ	12
Remmerswaal et al. (2015), The Netherlands	49 mother-child dyads; community	9-12 (10.39)	Modelling verbal fear response	FSSC-R	FBQ	12
Remmerswaal et al. (2010), The Netherlands	52 mother-child dyads; community	9-12 (10.60)	Modelling verbal fear response	FSSC-R	FBQ	14
Thirlwall and Creswell (2010), United Kingdom	24 mother –child dyads; community	4-5 (not reported)	Autonomy granting	ARBQ	PSFS	13

Note. ASQ = Ambiguous Situations Questionnaire (Barrett et al., 1996) ; ADIS-C = Anxiety Disorders Interview Schedule: Child Version (Silverman & Albano, 1996); ARBQ = Anxiety Related Behaviors Questionnaire (Eley et al., 2003); C-FAT = Child Feelings and Thoughts Measure (Burnstein & Ginsburg, 2010); CARBQ = Cognitive and Avoidant Response Biases Questionnaire (Micco & Ehrenreich, 2008); FBQ = Fear' s Beliefs Questionnaire (Field et al., 2001); FSSC-R = Fear Survey Schedule for Children- Revised (Ollendick, 1983); MCQ-C-30 = Metacognitions Questionnaire for Children – 30 (Esbjørn et al., 2013); PSFS = Performance Scale and the Feelings Scale (Thirlwall & Creswell, 2010); RCADS = Revised Child Anxiety and Depression Scale (Chorpita, Yim, Moffitt, Umemoto, & Francis, 2000); SCARED-C = Screen for Child Anxiety Related Emotional Disorders-Child Version; SCARED-P = Screen for Child Anxiety Related Disorders-Parent Version (Birmaher et al., 1997); STAI-C = State Trait Anxiety Inventory for Children (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1973).

development will be considered.

2. Method

2.1. Identification of studies

A systematic search strategy was undertaken to reduce potential bias in the selection of studies. Electronic literature searches of titles and abstracts were conducted using PsycInfo, Scopus, ProQuest Dissertations and Web of Science. Four categories of search terms were used: parent, child, anxiety, and cognitions. Search terms relating to parent included parent, caregiver, father, mother, maternal and paternal. Child related search terms included child and adolescent. Search terms relating to anxiety included anxiety, anxious, fear and worry. Cognition search terms included cognition, thought, bias, interpretation expectation, belief and appraisal. Search terms within each category were combined with the Boolean operator "OR" and search terms between concepts were combined with "AND". Final searches were conducted on 3rd April 2018. No date limits were placed on the searches.

The studies were identified as being eligible for review through a process of title screening followed by abstract screening and, finally full text article screening. Full text articles were reviewed in line with inclusion and exclusion criteria. Backward and forward citation searches were performed for all articles included from initial searches. Fig. 1 outlines the search process, using the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) method (Moher, Liberati, Tetzlaff, Altman, & The Prisma Group, 2001).

2.2. Inclusion and exclusion criteria

Studies were included if they fulfilled the following inclusion criteria: (1) participants were parent-child dyads (mother and/or father), (2) child anxiety was measured via child or parent report, (3) child anxious cognitions were measured via child or parent report, (3) parental behavior and/or expectations was measured either by parent self-report or by observation, or manipulated in relation to child anxious cognitions, (4) the association between parent behavior and child anxious cognition was reported, and (5) written in English. Studies were excluded if the focus on anxiety was related to a chronic health condition, or if the children were from populations with an intellectual impairment or neurological condition.

2.3. Data extraction and analysis

A systematic, narrative review was deemed to be the most suitable approach to address the current aims. For each study, the following characteristics pertaining to the aims of the current review were extracted: parental role that was examined, measure of child anxiety and anxious cognitions, as well as details pertaining to the sample (age of child; population; dyad). Where the aims and findings of identified studies were broader than of this review, only data (including effect sizes) relevant to the specific aims of this review were extracted.

An assessment of methodological quality of included studies informed the narrative description of the literature and highlighted areas of strength and weakness, as well as areas for future research, rather than determining inclusion in the review. Papers were rated using an adapted version of the Downs and Black's (1998) quality rating checklist. This checklist has been rated as a high quality rating tool for the appraisal of healthcare outcome studies (Deeks et al., 2003). Consistent with previous reviews (e.g. Sohanpal, Hooper, Hames, Priebe, & Taylor, 2012), the checklist was modified to suit the purpose of this review. Twelve checklist items that were applicable only to intervention studies were removed. Question 4 was adapted from, 'are the interventions clearly described?' to, 'are the methods undertaken clearly described?' to ensure that the replicability of the studies was assessed. All items were scored either 0 or 1, with a score of 1 denoting 'yes' and a score of 0 denoting 'no' or 'unable to determine'. An exception to this is item 5 which assesses potential confounders, and is scored 0, 1 or 2 (a score of 0 denotes 'no', 1 denotes 'partially' and a score of 2 denotes 'yes'). The maximum overall score available was 16.

3. Results

3.1. Overview of studies

A summary of the characteristics and quality rating of the included studies are reported in Table 1. In total, 13 studies (described in 12 papers) were included, with a total of 1609 parent-child dyads (ranging from 24 to 488). Six studies had a sample of both mother and father dyads and seven studies had a sample of mother-child dyads only. Of the seven studies with samples of both mothers and fathers five reported parent gender ratio; across these studies 29% of participants were fathers. The child sample age ranged from 2 years to 17 years (M = 9.52). All studies reported child gender ratios and there was a relatively even division of boys (48%) and girls (52%) included in the studies. Of the 13 studies, 10 recruited parent-child dyads from the community population; one from a clinical population; and two mixed clinical and community.

Child anxious cognitions were predominantly measured using validated self-report measures, with a few studies utilising measures devised by the authors for the purpose of the study (n = 3). Across studies that assessed cognitive biases, the most commonly utilised measures were: the Ambiguous Stories Questionnaire (ASQ, Barrett, Rapee, Dadds, & Ryan, 1996) to assess interpretation bias; and a form of information search task to assess confirmation bias. In studies that assessed anxious beliefs, the Fear Beliefs Questionnaire (FBQ, Field, Argyris, & Knowles, 2001), performance ratings and meta-cognitions questionnaire for children (MCQ-30, Esbjörn et al., 2013) were utilised. Child anxiety was measured by child self-report measures (n = 8), parent-report measures (n = 2) or both (n = 3). The most common measures of anxiety utilised across the included studies were the Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher, Khetarpal, Brent, & Cully, 1997) and the Fear Survey Schedule for Children-Revised (FSSC-R; Ollendick, 1983).

Quality rating scores ranged from 9 to 14, with a mean score of 12 (SD = 1.36) out of a possible 16 (see Table 2 for individual quality ratings by paper). All of the included studies clearly described the aims, methods and findings. The characteristics of participants were clearly described for all studies except one (Blossom et al., 2013), where parent gender ratio was not reported. Studies with the highest score of 14 (Muris, van Zwol, Huijding, & Mayer, 2010; Remmerswaal, Muris, Mayer, & Smeets, 2010) were experimental in design and were given the highest possible score for each question except it was not possible to determine if any findings were based on 'data dredging' or if participants were recruited over the same period of time. A common weakness in methodological quality was the creation of non-validated questionnaires to measure child anxious cognitions (Becker & Ginsburg, 2011; Creswell, Shildrick, & Field, 2011; Thirlwall & Creswell, 2010) and child anxiety (Becker & Ginsburg, 2011).

A summary of the main effects reported in each study is presented in Table 3. Study findings will be reviewed according to the three main proposed pathways to childhood anxious cognitions through parenting behavior: (i) parent modelling of a fear response (verbal and non-verbal) and (ii) parent expectations of the child (iii) associated rearing behavior (e.g. lack of autonomy granting).

3.2. Modelling a fear response

Cognitive-behavioral theory proposes that parents influence the development of anxious cognitions in their child by modelling fearful responses (Creswell et al., 2010), through both verbal and non-verbal behavior. Of the 13 studies reviewed, eight examined the role parental

Table 2
Table of individual item scores on Downs and Black (1998) quality rating checklist.

		Score Studies Checklist Questions														
Total		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
11	Becker and Ginsburg (2011)	1	1	1	1	1	1	1	1	1	0	0	1	0	0	1
13	Blossom et al. (2013)	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1
12	Burnstein and Ginsburg (2010)	1	1	1	1	1	1	1	1	1	0	0	1	1	0	1
9	Creswell et al. (2011)	1	1	1	1	1	1	0	1	1	0	0	1	0	0	0
12	Fliek et al. (2017)	1	1	1	1	1	1	1	1	1	0	0	1	1	0	1
13	Lønfeldt et al. (2017)	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1
13	Micco and Ehrenreich (2008)	1	1	1	1	2	1	1	1	1	1	0	1	0	0	1
14	Muris et al. (2010)	1	1	1	1	2	1	1	1	1	1	0	1	1	0	1
11	Ooi et al. (2015)	1	1	1	1	1	1	0	1	1	0	0	1	1	0	1
12	Remmerswaal et al. (2015)	1	1	1	1	1	1	1	1	1	0	0	1	1	0	1
12	Remmerswaal et al. (2015)	1	1	1	1	1	1	1	1	1	0	0	1	1	0	1
14	Remmerswaal et al. (2010)	1	1	1	1	2	1	1	1	1	0	1	1	1	0	1
13	Thirlwall and Creswell (2010)	1	1	1	1	2	1	1	1	1	0	0	1	1	0	1

modelling of fearful behavior (verbal and non-verbal) may have on the development of anxious cognitions in children. Non-verbal fearful behaviors demonstrated by parents were assessed by self-report, coded observations, or experimental manipulation, and commonly defined across measurements as fearful facial expression, pacing, rigid posture, lip biting, wringing of hands, rocking in a chair and avoidance. Verbal fearful behaviors demonstrated by parents were assessed by coded story-stem completion, coded observations, or experimental manipulation, and commonly defined as the transfer of threat information (e.g. warning to avoid dangerous situations, that the world is unsafe) or anxious cognitions in verbal expression (e.g. 'what if you fail?'; 'Do you think you'll be able to do this in front of the camera?'). Seven of the eight studies reported direct significant associations (correlation or main effects) between parental modelling and child anxious cognitions; effect sizes ranged from small to large, with larger effects reported from experimental designs.

Fliek, Dibbets, Roelofs, and Muris, (2017) recruited a sample of (n = 258) both mother- and father-child dyads (7-12years) within a cross-sectional design. Parental fear modelling was assessed by a self-report questionnaire, which referred to fear-enhancing non-verbal behavior and verbal threat information transfer. Child threat interpretation (ambiguous stories) and confirmation biases (information search task) were measured as examples of anxious cognition. All direct correlations between parent behavior (mother and father) and child cognition were non-significant. However, in subsequent analyses, the authors demonstrated that increased child interpretation bias partially explained the relationship between maternal (but not paternal) behavior and child anxiety. However, the cross-sectional design precludes causative interpretations.

Beyond self-reported parental behavior, further studies employed observational designs to assess the impact of parent modelling on child anxious cognitions. Becker and Ginsburg (2011) instructed children aged 6–14 years to give a brief speech, and observed natural maternal behavior during a 5-minute speech planning period, in a community sample of mother-child dyads (n = 75). Observed maternal behaviors were subsequently coded as anxious (non-verbal and verbal) and 'overcontrol' (reviewed below). Increased modelling of anxious behavior displayed by mothers significantly (p < .05) correlated with lower retrospective performance evaluations reported by the child; with a stronger relationship demonstrated for coping evaluations (r = -0.32), than performance evaluations (r = -0.12). Cognitive variables did not correlate with child age.

In a study of younger children (2-6years), Ooi, Dodd, and Walsh, (2015) assessed natural parental behavior, specifically verbal communication of threat-related information, in a community sample of parents-child dyads (n = 50). Parents and children individually completed eight ambiguous story-stems; parents completed the stories as they would tell them to their child. Story endings were subsequently coded on a 7-point Likert scale from threat or no threat. Increased threat-related endings of parent stories were significantly correlated with increased threat-related endings in child stories, indicating a positive relationship between parental verbal fearful behavior and child threat interpretation bias. When the sample was split by age (2–3years vs 4–5years), large and significant associations were reported for younger children (girls r = .93 / boys r = .56), and no significant associations for older children. It should be noted that the story completion by parents was hypothetical, and actual parent behavior was not assessed in this study.

Four of the remaining five studies that assessed parental modelling of fear assessed causal effects on child anxious cognitions in experimental designs. All four experimental studies reported significant effects of manipulated parental modelling on a range of child anxious cognitions, including performance evaluation, fear beliefs, and confirmation bias. Burnstein and Ginsburg (2010) trained parents to display calm (e.g. sitting still and appearing relaxed) or fearful behavior during a 2-minute discussion of an upcoming spelling test with their child (8-12years). In the fearful condition, parents were trained to display relevant non-verbal behavior (e.g. rigid posture, twitching, lip-biting) and verbal behavior expressing threat-based cognitive biases (e.g. 'this test might be too hard for you…what if you fail?'). Children exposed to fearful modelling subsequently reported poorer performance-related anxious cognitions (e.g. 'how hard do you think this test will be for you? How do you think you will do on the test?') compared to children exposed to calm behavior. anxious cognitions were subsequently assessed. This effect was consistent for both mothers and fathers; however, the effect size for fathers was greater (d = 3.73 vs 1.85).

The subsequent four studies originate from the same research group, and all utilise a novel animal paradigm to assess the effects of verbal fear-response modelling and associated fear beliefs and confirmation bias in children sampled from a community population (Muris et al., 2010; Remmerswaal et al., 2010, 2015). Muris et al. (2010) manipulated the information that parents (mothers and fathers) received about the novel animal prior to discussion with their child (8-13years): positive, negative or ambiguous information. The manipulation was effective: parents who were given negative information were more likely to use threatening narratives about the animal in subsequent discussions than parents who were given positive information. The effect on child anxious cognitions was also significant: children of parents who had been given negative information subsequently reported higher levels of animal-related fear beliefs and confirmation bias (information search task) than the children whose parents were given positive information. Remmerswaal et al. (2010) replicated these effects on child fear beliefs and confirmation bias, when mothers engaged in a

Table 3
Table of extracted effects.

Author(s) and year	Results (sig value; effect size)
Becker and Ginsburg (2011), United States	Over-control and child self-evaluation of coping, r = -.15 (small), p > .05 Anxious behavior (verbal and non-verbal) and child self-evaluation of coping, r = -.32 (medium), p < .05 (sig predictor in regression) Over-control and child self-evaluation of performance, r = .23 (small), p > .05 Anxious behavior (verbal and non-verbal) and child self-evaluation of performance, r = -.12 (small), p > .05
Blossom et al. (2013), United States	Parent expectations of child threat interpretation bias (ambiguous situations) and child threat interpretation bias, r = .21 (small), p < .01
Burnstein and Ginsburg (2010), United States	Comparison of parent fear response modelling on child anxious cognitions: anxious group vs non-anxious group, $F(111)$ = 119.39, p < .001, d = 3.73* (large) (male parent), $F(111)$ = 36.56, p < .001, d = 1.85 (large) (female parent)
Creswell et al. (2011), United Kingdom	Time 3: Parent distress expectancies and child threat interpretation b = -.47, SE = .21, p < .05 Time 3: Parent threat expectancies and child threat interpretation b = .66, SE = .19, p < .001
Fliek et al. (2017), The Netherlands	Parent enhancement of anxious cognitions (modelling) (mother/father) and child confirmation bias, r = -.05 / .04, ns Parent enhancement of anxious cognitions (verbal threat info) (mother/father) and child confirmation bias, r = .07 / .09, ns Parent enhancement of anxious cognitions (modelling) (mother/father) and child interpretation bias, r = .06 / -.03, ns Parent enhancement of anxious cognitions (verbal threat info) (mother/father) and child interpretation bias, r = .04 / -.04, ns Parent overprotection (mother / father) and child confirmation bias, r = .00 / .04, ns Parent overprotection (mother / father) and child interpretation bias, r = .05 / -.14, ns
Lønfeldt et al. (2017)	Maternal control and child 'need for control' (MCQ) r = -.15 (small), p < .05 No relationship between over-involvement and child cognition
Micco and Ehrenreich (2008), United States	Beyond clinical status of child… Mother's expectations of child coping (coder-rated) unique predictor of coder-rated child threat perception of salient situations, $ß$ = -.26, t = -2.24, p = .03 (r = -.34 (medium)) Mother's expectations of child coping (self-rated) non-significant predictor of self-rated child threat perception of salient situations, $ß$ = -.24, t = -1.84, p = .07 (r = -.34 (medium)) Mother's expectations of child coping (coder-rated) unique predictor of coder-rated child coping expectations of salient situations, $ß$ = -.22, t = 7.97, p = .05 (r = .33(medium)) Mother's expectations of child coping (self-rated) unique predictor of self-rated child coping expectations of salient, $ß$ = .28, t = 2.35, p = .02 (r = .52 (large)), and non-salient situations, $ß$ = .36, t = 2.79, p < .01 (r = .23 (small))
Muris et al. (2010), The Netherlands	Change in child fear beliefs influenced by parent information giving (positive, negative, ambiguous) ($F(281)$ = 44.58, p < .001, partial eta^2 = .52 (large)) Ambiguous condition correlations, children's fear beliefs and a) Anxious rearing r = .43 (medium), p < .05 b) Negative statements, r = .68 (large), p < .05
Ooi et al. (2015), United Kingdom	Parent written story-stem and children's interpretation bias, r = .37 (medium), p = .02 Varied by age and gender. Age 2-3 years: girls r = .93 (very large), p < .001; boys r = .56 (large), p = .19 (underpowered) Age 4-5 years: girls r = -.05, p = .88; boys r = .16, p = .69
Remmerswaal et al. (2015), The Netherlands	Negative training condition showed increase in search for negative information from pre to post-training (F(157) = 18.84, p < .001, partial eta = .25 (large)), decrease in positive information (F(157) = 3.57, p = .06, partial eta = .06 (small)) Positive training condition showed decrease in search for negative information (F(156) = 12.92, p < .001, partial eta = .18 (medium)), and an increase in number of positive information requested (F(156) = 9.33, p < .01, partial eta = .14 (medium)). Negative training showed increase in fear beliefs about novel animal, pre- to post-training, $F(1, 57)$ = 9.17, p < .01, partial eta^2 = .14 (medium) Positive training showed decrease in fear beliefs about novel animal, pre- to post-training, $F(1, 56)$ = 7.27, p < .01, partial eta^2 = .12 (medium)
Remmerswaal et al. (2015), The Netherlands	Negative questions asked by mothers (pre) predicted negative questions asked by child (post) (B = .33, t = 2.67, p < .05) and child fear beliefs (post) (B = .28, t = 2.70, p < .05) Positive questions asked by mothers (pre) predicted positive questions asked by child (post) (B = .12, t = 2.81, p < .01) and inversely child fear beliefs (post) (B = -.30, t = -3.10, p < .01)
Remmerswaal et al. (2010), The Netherlands	Difference between post-hoc fear beliefs of children in threat- versus positive-information condition: $F(147)$ = 90.52, p < .001, partial eta^2 = .66 (large) Children in threat condition less often adopted falsification strategy (confirmation bias): $F(147)$ = 5.43, p < .05, partial eta^2 = .10 (medium)
Thirlwall and Creswell (2010), United Kingdom	Controlling condition more anxious cognitions (performance expectations) compared to autonomy granting condition (z = -3.13, p = .002, r* = -.46 (medium)). Experimental effect not correlated with maternal habitual overprotection ($r(20)$ = -.19 (small), p = .44)

* Calculated from data extracted from publication.

structured discussion of animal-related vignettes (e.g. you are walking in the park with your child when an animal appears from behind a tree) after receiving either negative or positive information about the animal.

Two further novel animal studies were reported in Remmerswaal et al. (2015) with mother-child dyads. In the first study, mothers trained their child in the animal-related information search task based on instructions to direct the child toward positive information (positive confirmation bias) or negative information (negative confirmation bias). The search strategy of children was compared pre- and post-training with their mothers. Children showed a significant change in their information search strategy according to their mother's training condition. Children exposed to negative training demonstrated a subsequent increase in negative confirmation bias (and decrease in positive confirmation bias). Conversely, children exposed to positive training demonstrated a subsequent increase in positive confirmation bias (and reduction in negative confirmation bias). Furthermore, the effect on anxiety-related cognitive bias extrapolated to fear beliefs reported by the children, with a respective increase (negative training) or decrease (positive training) in fearful beliefs.

The second study reported by Remmerswaal et al. (2015) utilised a correlational design to examine the relationship between parent verbal modelling and child cognitions in the novel animal scenario when ambiguous information is provided. Mothers and children completed the information search task at three time points: time 1 separately; time 2 together; time 3 separately. A maternal negative confirmation bias at time 1 predicted the child's negative confirmation bias at time 3 (controlling for time 1). The counter-effect was observed for a positive confirmation bias. Both effects extrapolated to child fear beliefs, such

that maternal confirmation bias at time 1 predicted child fear beliefs at time 3 (controlling for time 1; positive – reduction; negative – increase). Furthermore, a negative search bias demonstrated by the child mediated the relationship between mother's negative confirmation bias at time 1 and child negative confirmation bias at time 3. Across the four novel animal studies consistent support is drawn for the supposition that parental modelling of a verbal fear response to their child effects the child's subsequent anxious cognitions (bias and beliefs).

3.2.1. Summary

Across the studies investigating the association between parental fear response modelling and child anxious cognitions, the evidence favours a positive association. Findings from experimental manipulations of parent behavior provide the most consistent and largest effects of parental modelling on child anxious cognitions, including self-reported cognitions (performance ratings and fear beliefs) and biases assessed through information search tasks. However, only one experimental study assessed parental non-verbal behavior alongside verbal (Burnstein & Ginsburg, 2010), and those studies that assessed parental verbal behavior did not include a coding of non-verbal behavior. The findings indicate that both verbal and non-verbal modelling are associated with child anxious cognitions; however, the separation of these behaviors in future studies would be useful to examine any differential effects. Significant findings were reported across a broad child age range (2–14 years).

3.3. Parent expectations

A cognitive-behavioral understanding of the parental role in the development of child cognitions indicates parents' expectations about their child regarding poor coping and distress are conveyed through parenting behavior that restricts the child's autonomy (Creswell et al., 2010), contributing to the development of anxious cognitions in the child. Of the 13 studies reviewed, three correlational studies assessed parent expectations, which were generally operationalised as the anticipation of the child's response (self-rated or coded) to hypothetical or real anxiety-provoking scenarios, including threat-interpretation, distress, and coping. All three correlation studies reported significant small-medium relationships between parent expectations of their child and the child's anxious cognitions; quality varied from lowest (Creswell et al., 2010) to second highest (Micco & Ehrenreich, 2008).

In a cross-sectional study of clinically anxious children and their parents (n = 488), Blossom et al. (2013) assessed parents' expectations of their child's threat bias, and actual threat bias of the child (7–17years), through their responses to generic ambiguous situations. Parents' expectations of their child's threat bias predicted the child's greater perceived threat. Micco and Ehrenreich (2008) replicated and extended this study by assessing parent expectations of their child (threat and coping) in relation to both salient and non-salient situations. Mothers and children (7–14 years; clinical and nonclinical) were presented with commonly encountered fear situations (including those personally salient to the child) and provided self-ratings of threat and coping as well as free-response answers that were subsequently coded by researchers. The findings from a series of regression analyses generally failed to replicate the relationship between parent expectation and child responses, with the exception of self-rated parent expectations of coping and child expectations of coping. However, across all measurement types (self- versus coder-rated; threat and coping) parent expectations predicted child response to salient realistic situations.

In a longitudinal study of a community sample, Creswell et al. (2011) examined the stability of the relationship between threat cognitions of children (5-9years) and their parents' expectations (distress and threat) using ambiguous scenarios at three time points over a year (T1, T2, T3). The authors reported mixed findings with regard to the relationship between parent expectations and child threat cognitions. Parental distress expectancies at T1 predicted child distress cognitions at T2 only, suggesting that children's distress cognitions may initially be affected by parental expectations, but that the parental influence may lessen or cease as the child develops their own cognitions regarding their ability to cope. Furthermore, it is of note that child threat cognitions at T2 predicted parental threat expectancies at T3; these parental threat expectancies predicted child threat cognitions at T3. These findings illustrate the potential complex relationship between parental expectations and child anxious cognitions and indicate the bidirectionality of the relationship over time. Low internal consistency in the expectancy measures at some time points in the study suggests that the inconsistent findings may have been a result of low robustness in measurement. If the finding reflects a true result, then it would suggest that parents' threat expectations might develop over time, and in response to children's anxious cognitions.

3.3.1. Summary

Generally positive and predictive relationships were observed for parental expectations (of child bias, and child coping) related to child cognitions (threat and coping), across community and clinical samples. However, it is not conclusive whether parental expectations of child anxious cognitions are an indication of parents' knowledge of their child's cognitions, rather than evidence that parents indirectly influence their child's cognitions. As tentatively proposed from longitudinal findings (Creswell et al., 2011), these relationships may be reciprocal, and differ for distress and threat expectations. In addition, causality cannot be inferred, nor can the contribution of parent behavior within this relationship.

3.4. Parental rearing behavior

A cognitive-behavioral understanding of the parental role in the development of child cognitions indicates parents' expectations about their child regarding poor coping and distress are conveyed through parenting behavior that restricts the child's autonomy (Creswell et al., 2010), contributing to the development of anxious cognitions in the child. Of the 13 studies reviewed, four studies examined lack of autonomy granting in parental rearing behavior: three correlational and one experimental design. Lack of autonomy granting was operationalised across studies as increased in controlling (over-control) or protective (over-protective) behavior. Over-protection, assessed in relation to habitual rearing behavior included behaviors that restrict child's exposure to situations perceived as threatening or harmful (e.g. climbing trees; criticism). Habitual over-control referred to the degree to which the parent reported monitoring or controlling their child's behavior. In relation to a specific task in the laboratory, coded or trained over-controlling behavior included unsolicited and frequent guidance, assistance or commands to direct the child and being more involved than necessary. Two of the four studies reported significant and positive associations or main effects, with small to medium effects. Small effects were reported by studies with higher quality ratings (e.g. Thirlwall & Creswell, 2010; Lønfeldt, Esbjørn, Normann, Breinholst, & Francis, 2017); non-significant findings were reported by studies with lower quality ratings (Becker & Ginsburg, 2011; Fliek et al., 2017). However, overall the results are mixed between and within studies.

Across two studies mothers prepared their child for a speech task; maternal over-controlling behavior was either coded or trained. In the only experimental design, Thirlwall and Creswell (2010) trained mothers to act in controlling or autonomy granting ways in the speech-preparation period. Children (4–5years) in the controlling condition reported more negative predictions about their performance prior to delivering the speech, in comparison to children in the autonomy-granting condition. These experimental effects were not related to self-reported habitual over-protection; however, bivariate correlations between cognitions and habitual over-protection not reported. In contrast, Becker and Ginsburg (2011) reported non-significant bivariate correlations between observed maternal controlling behavior (coded), and

children's (6–14 years) evaluation of their performance and coping (after the speech). However, in subsequent regression analyses maternal control was significantly related to child evaluations of performance (B = -0.26), although overall maternal variables did not account for a significant proportion of variation in child evaluations beyond child task anxiety. Becker and Ginsburg assessed these relationships in a pooled sample of anxious and non-anxious mothers. No comparisons, or differential analyses, for anxious versus non-anxious mothers are reported. Therefore, the impact of differences in parental anxiety is unclear and baseline differences were indicated for task-related anxiety in mothers. Although both of these studies utilised the same speech-task, key differences in the methodologies may account for the differential findings, including experimental versus cross-sectional designs, child cognitions assessed pre- (anticipatory) versus post-speech (evaluative), and sample differences in relation to parental anxiety and child age.

Fliek et al. (2017) utilised the ambiguous stories paradigm to assess child threat-interpretation, and an information search task to assess child confirmation bias, with their sample of non-clinical children (n = 258; 7-12years). Mother's and father's self-reported habitual over-protective rearing behavior. No significant relationships were observed between parental over-protection and child anxious cognitions (either threat-interpretation or confirmation bias).

In a recent study, Lønfeldt et al. (2017) extended the investigation of child anxious cognitions to a meta-cognitive level. In a cross-sectional design, a community sample of mother-child (n = 188; 7-12years) dyads completed measures of anxiety related meta-cognitions. Maternal controlling behavior was assessed through self-report. An observer-coded task also assessed mothers' 'over-involvement' during a puzzle task with their child, including general degree of involvement, unsolicited help, and touching of puzzle. The study demonstrated inconsistent findings across these measurement types, and the different meta-cognitions of the child. Maternal reported over-control correlated with child-reported 'need for control' cognitions; however, observer coded maternal over-involvement did not relate to any child meta-cognitions.

3.4.1. Summary

With regards to parent lack of autonomy behavior, the observed findings varied across different measurement methods. Parent self-reported habitual over-protection did not relate to child threat interpretations (Fliek et al., 2017), but maternal self-reported habitual over-control did relate to child anxious meta-cognitions (specifically 'need for control'; Lønfeldt et al., 2017). Observer coded maternal over-control did not relate to child performance evaluations (Becker & Ginsburg) or meta-cognitions (Lønfeldt et al., 2017).

These findings may suggest that the pathway from parent expectations through lack of automony granting to child anxious cognitions may be specific rather than general. For example, the effect of lack of autonomy granting behavior on child anxious cognitions may be specific to a child's expectations. However, none of the studies reviewed considered the whole pathway, i.e. the developmental nature of the relationship between parent expectations, parent behavior and child cognitions. Cognitive-behavioral theories hypothesise that parental expectations impact parental lack of autonomy granting in rearing behavior, which in turn contributes to the development of child anxious cognitions. However, the literature reviewed does not provide evidence for this whole pathway, rather only support for constituent parts.

4. Discussion

The purpose of the current review was to synthesise synthesise research evidence examining the role of parent expectations and behavior in the development of child anxious cognitions. The findings drawn from the reviewed literature were considered in relation to a cognitive-behavioral framework of parental pathways that lead to the development of child anxious cognitions (Creswell et al., 2010; Hudson & Rapee, 2004); namely via parental modelling of a fear response, parental expectations of child and rearing behavior (lack of autonomy granting).

The studies included in the review provide mixed evidence for the role of parental behavioral pathways to child anxious cognitions. The most consistent evidence relates to parental modelling of fear; the findings reviewed were generally favourable towards a positive relationship between parental modelling and child anxious cognitions across cross-sectional and experimental designs. Given that a proportion of the reviewed studies were experimental in design, it is possible to draw inferences regarding a causal relationship between parents modelling a fear response and the development of child anxious cognitions. Further, Fliek et al. (2017) found that when parents reported high levels of both verbalising and modelling of fearful behavior, that there was a stronger association with their child experiencing anxiety than when the parental behaviors were considered separately. It is likely that parents engage in both of these behaviors at the same time and therefore that when they are combined, the impact of them on their child developing anxious cognitions may be stronger. The reviewed studies were weighted towards the assessment of modelling of fear through verbal responses, with only one study assessing non-verbal behavior (with positive results). Further research is required on the contributing role of non-verbal modelling of fear response, and differentiation of verbal and non-verbal in relation to child anxious cognitions. Such research will assist in determining if verbal expression of a fear response is necessary for the development of anxious cognitions in children.

The cognitive-behavioral framework put forward by Creswell et al. (2010) suggests that parental expectations of their child's ability to cope leads to parental rearing behavior that restricts the child's autonomy. The included studies considered the relationship between parental expectations and child anxious cognitions, and between parental rearing behavior and child anxious cognitions. There is some consistency across studies in support of a positive relationship between parental expectations and child anxious cognitions; however, causality is difficult to infer. One longitudinal study examined relationships between these constructs over time, with the findings suggesting a possible bidirectional relationship and the influence of child anxious cognitions on parental expectations over time (Creswell et al., 2011). This finding is consistent with studies that did not meet criteria for inclusion in the current review. For example, in cross-sectional and longitudinal analyses, Creswell presented evidence for a the relationship between parents' expectations of child distress and the child's own anxious cognitions, demonstrating that parents' expectations predicted the change in child anxious cognitions over time.

There was less consistency of evidence across studies that investigated the role of parental rearing behavior, with heterogeneity in measurement of parental behavior (observed versus self-report versus trained) and child anxious cognitions. The mixed evidence provides some indication of specificity in the relationship between parental over-control and child anxious cognitions (e.g. over-control was specifically related to child cognitions of 'needing control'). None of the included studies examined both parental expectations and rearing behavior in relation to child anxious cognitions, or considered the linked pathway proposed by Creswell et al. (2010). Furthermore, the support for the lack of autonomy granting relies on measurement of parental control as the assumed opposing and excluding behavior. However, it is possible that parents can demonstrate both autonomy granting and controlling behavior, and thus the constructs may not lie in direct opposition. Indeed, in a meta-analysis of predictors of child anxiety, McLeod et al. (2007) demonstrated a stronger effect size for autonomy granting as a more specific behavioral construct than parental control. Further research is required to evidence the linked causal nature of the relationship between parental expectations, rearing behavior and child anxious cognitions. Currently the literature is beholden to limitations in measurement; greater specificity in target behavior and cognitions is

required to allow the accumulation of evidence.

4.1. Limitations of the literature and future directions

The heterogeneity of design and measurement have limited the conclusions that can be drawn from the literature reviewed. The quality of evidence for the role of parental modelling is relatively strong by comparison to expectations and rearing behavior, owing to the number of experimental designs that have been applied. However, the lack of coding of non-verbal behavior means that it is not possible to determine the respective contributing roles of verbal and non-verbal modelling. Furthermore, the experimental designs are limited in ecological validity; both parents and child behavior in these studies is influenced by their awareness that the threat was fictitious. Given that much of the research included in the review is experimental and cross-sectional in design, it is important for future research to measure how parents may behave when faced with real-life threatening events in which there are potential consequences for their child's safety.

The literature pertaining to parental expectations and rearing behavior relies on self-report measurements, with little in the way of experimental design. Parent self-reported rearing behavior may be influenced by their own expectations and anxiety; and, as highlighted by Creswell et al. (2011), by their child's own cognitions, anxiety and behavior. The reviewed literature illustrates the potential differential results from observed or trained parental behavior compared to self-reported (Lønfeldt et al., 2017; Thirlwall & Creswell, 2010). Additional studies not reviewed here have considered the relationship between child-rated parental behavior and child anxious cognitions. In a combined sample of mothers and fathers with anxiety disorders, Affrunti and Ginsburg (2012) reported that child interpretation biases to threat mediated the relationship between child-rated parental control and child anxiety. Similarly, Lester, Seal, Nightingale, and Field, (2010) demonstrated that the relationship between maternal and child anxious cognitions was mediated by the child's own expectations of their mother's threat interpretations. The interplay between child and parent perception of parent behavior and their own anxious cognitions needs to be considered in future research. Studies with multi-modal measurement are likely to elucidate potential differences between informants. Thus, in order to move forward in our understanding of the intergenerational transmission of anxious cognitions, the field would benefit greatly from a triangulation of measurement of parental rearing behavior: self-reported; child-reported, and observed.

Across the reviewed studies the age range of the children is broad (from 2 to 17years); with a predominant focus on middle childhood. Only one study assessed younger children, and none focused solely on adolescence. Little consideration is given to role that the age of the child may play in the observed relationships. Although some studies do statistically control for child, there is not greater consideration of the potential differential effects across development. There are also mixced findings reported: In a split analysis of younger and older children (all between 2-5years), Ooi et al. (2015) reported stronger relationships between parental modelling and child anxious cognitions for the younger sample. However, Becker and Ginsburg (2011) reported no correlation between child age and anxious cognitions for their sample of 6–14 year olds. In a recent study specifically designed to assess differences in the relationship between child anxiety and parenting behavior across age groups, Waite and Creswell (2015) reported that parental expressions of intrusiveness and anxiety were higher towards children in middle childhood (7-10years) compared to adolescence (13-16years), with a further moderating role of child age being reported in the relationship between child anxiety and parenting behavior. Thus it is imperative that future research on child anxious cognitions considers the role of the age of the child.

The samples in the reviewed literature were weighted towards mothers. Although some studies recruited both mothers and fathers, these samples were still mostly biased towards mothers. Therefore, conclusions concerning the potential differences between the behavior of mothers and fathers in relation to child anxious cognitions are compromised. From the literature reviewed, there is stronger evidence for the role of maternal behavior in the development of child anxious cognitions than paternal behavior. In one study that examined differences in mothers and fathers, differential relationships were observed for modelling (with maternal, but not paternal modelling associated with child threat bias) and threat information transmission (both parent genders demonstrated significant associations with child threat bias) (Fliek et al., 2017). Previous research on the role of mothers and fathers in the development of child anxiety suggests that they may hold distinct roles (Bögels & Phares, 2008; Verhoeven, Bögels, & van der Bruggen, 2012). A recent meta-analytic review reported that the association between parental behavior and child anxiety symptoms was stronger for fathers than mothers (Möller, Nikolic, Majdandzic, & Bögels, 2016). Thus further research is required to determine whether this differential effect extends to a specific influence over child anxious cognitions.

Given the weighting of evidence toward parental modelling as a pathway to child anxious cognitions, future research should also consider the pathways through autonomy granting and parental expectations. Future studies relating autonomy granting to child anxious cognitions should clearly define and operationalise the construct, as distinct from parental control. Measurement of both constructs would enable conclusions regarding their individual and combined contribution as pathways to child anxious cognitions. Furthermore, future research should seek to establish the unique variance that each pathway proposed by Creswell et al. (2010) accounts for in explaining the development of child anxious cognitions. Hence, conclusions about the type of parental behavior that has the strongest influence on the development of child anxious cognitions could be made, and subsequently inform preventative and intervention approaches to child anxiety.

An important direction for future research would be to establish if child developmental stage impacts on the parental role in the development of child anxious cognitions. Given that research on child anxiety has demonstrated that parental behavior is influenced by child age (Hagekull, Bohlin, & Hammerberg, 2001), further research using longitudinal methods would be needed to clarify how changes in parental behavior may impact on the development of child anxious cognitions. Further, it would be useful for future research to decipher if parental behavior has a specific effect on each individual type of cognitive bias and whether parental behavior has a stronger effect on some types of biases developing in comparison to others.

4.2. Clinical implications

The current review confirmed that parental behavior contributes to the development of child anxious cognitions. Therefore, parental behavior may be a potential target within family-based treatments for child anxiety. Findings from the current review indicate specific parenting behavior that could be targeted in prevention or intervention strategies. For example the finding that when parents behave in minimising ways, the relationship between child anxious cognitions and child anxiety is weakened suggests that parents who tend to use excessive reassurance with their child could be instructed to appropriately minimise their child's distress, which may in turn challenge their anxious cognitions. Similarly, parents may benefit from psycho-education around how their behavior may serve to exacerbate or maintain child anxious cognitions. Ready established evidence-based parenting programmes, such as 'From Timid to Tiger' (Cartwright-Hatton, Laskey, Rust, & McNally, 2010), can incorporate specific information about how parental behavior can lead to the development of child anxious cognitions, and behavior that could minimise their development.

4.3. Limitations of the review

Given that research on child anxious cognitions is relatively recent

and sparse, the current review did not focus on distinguishing between different types of cognitions. Recent developments in the cognitive theory of anxiety has prompted the study of metacognitions in the context of child anxiety (for example, positive and negative beliefs about worry). Parental metacognition and parental behavior have both been associated with anxiety-specific meta-cognitions in children (Donovan, Holmes, Farrell, & Hearn, 2017; Lønfeldt et al., 2017). From the evidence reviewed here, it is not possible to generalise the evidence for parental behavior to all types of anxious cognitions. Future research should consider the potential unique role of specific parental behaviors on each type of cognition.

The present review also only focused on the parental pathways to child anxious cognitions, and did not consider the preceding pathway of parental anxious cognitions. Previous research has demonstrated a link between parents' own anxious cognitions and those of their child (Donovan et al., 2017). Thus a further review related to the link between parents' anxious cognitions and their parenting behavior would provide an assessment of this preceding aspect to the Creswell et al. (2010) model. Lastly, this review aimed to consider the development of child anxious cognitions, as a specific factor in the context of child anxiety. There are many studies relevant to considering the role of parenting in the development of child anxiety, and previous reviews of such research (McLeod et al., 2007; Murray et al., 2009; Wood et al., 2003) should be considered alongside the present review.

The aims of the current review were to synthesise the evidence for specific parental pathways to child anxious cognitions. However, it is important to note that these are not purported to be the sole contributing factors in child anxious cognitions, either in regards to the parental role or the contribution of broader systemic and environmental factors. Creswell et al. (2010) caution that there are other factors that are important in the development of anxious cognitions in children, beyond the parenting behaviors noted in their model, including broader socialisation. For example, non-supportive parenting behavior impacts on the relationship between child anxious cognitions and child anxiety (Viana, Dixon, Stevens, & Ebesutani, 2016). Blossom et al. (2013) examined the role of broader family dysfunction; defined in terms of consistency, interpersonal relationships and communication. The authors established that child-reported family dysfunction was a significant predictor of child anxious cognitions. These findings are consistent with the broader literature on familial influences on child anxiety (Bögels & Brechman-Toussant, 2006). Manassis and Bradley (1994) posit that the development of child anxious cognitions is caused and maintained by a complex interplay between several mechanisms, including systemic factors, such as interactions with other family members and teachers in school and attachment relationships.

4.4. Conclusions

The present systematic review sythesises the evidence for a cognitive-behavioral understanding of the intergenerational transmission of anxious cognitions (Creswell et al., 2010; Hudson & Rapee, 2004), specifically the contribution of parental pathways relating to modelling a fear response, parental expectations and rearing behavior. The strongest evidence supports the role of parental modelling of fear in the development of child anxious cognitions. However, all conclusions made must be viewed as tentative, given that they are based on a small number of studies with methodological limitations. Future research should focus on further establishing the role that parents have in the development of child anxious cognitions through examining parental behavior in real-life scenarios and through greater use of longitudinal methods.

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Contributors

LME contributed to idea initiation, conducting final searches, editing of original and final drafts; CO contributed to idea initiation, conducting initial searches, writing original draft; GR contributed to idea initiation; editing of original and final drafts.

Conflict of Interest

All authors declare that they have no conflicts of interest.

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