

Parental internalizing symptoms as predictors of anxiety symptoms in clinic-referred children

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Abstract

Background: Mothers' and fathers' internalizing symptoms may influence children's anxiety symptoms differently.

Objective: To explore the relationship between parental internalizing symptoms and children's anxiety symptoms in a clinical sample of children with anxiety disorders.

Method: The sample was recruited through community mental health clinics for a randomized controlled anxiety treatment trial. At pre-intervention, children ($n = 182$), mothers ($n = 165$), and fathers ($n = 72$) reported children's anxiety symptoms. Mothers and fathers also reported their own internalizing symptoms. The children were aged 8 to 15 years ($M_{age} = 11.5$ years, $SD = 2.1$, 52.2% girls) and all had a diagnosis of separation anxiety, social phobia, and/or generalized anxiety disorder. We examined parental internalizing symptoms as predictors of child anxiety symptoms in multiple regression models.

Results: Both mother and father rated internalizing symptoms predicted children's self-rated anxiety levels (adj. $R^2 = 22.0\%$). Mother-rated internalizing symptoms predicted mother-rated anxiety symptoms in children (adj. $R^2 = 7.0\%$). Father-rated internalizing symptoms did not predict father-rated anxiety in children.

Conclusions: Clinicians should incorporate parental level of internalizing symptoms in their case conceptualizations.

Keywords: children; adolescents; parents; anxiety; anxiety disorders

Introduction

Anxiety disorders are prevalent among children and may have long-term negative impact on individuals' personal, social, and academic functioning (1). Several factors may influence the development and maintenance of anxiety in children, including genetic, physiological, temperamental, parental, and family-context related risks (2-4). Increased knowledge about factors that influence the level of anxiety symptoms in children is needed to improve clinical practice, as well as to prevent onset of anxiety disorders in children.

One potentially modifiable factor found to influence children's anxiety symptom levels is parental internalizing symptoms, defined herein as symptoms of anxiety, depression, and stress. Several

clinical studies have demonstrated associations between parental internalizing problems and anxiety in children. In terms of parental disorders, the prevalence of social phobia (SOP) and separation anxiety was found to be higher among children of parents with panic disorder and depression compared to controls (5). Parents of children with anxiety disorders had a threefold risk to meet the criteria for an anxiety disorder compared to parents of children with no anxiety disorder (6). Similar results were reported in a sample of children with separation anxiety disorder (SAD), whose parents had more anxiety and mood disorders than parents to children without any mental disorders (7).

A review of 134 studies assessing parental disorders and/or symptom severity identified

stronger associations for maternal depression than for paternal depression on internalizing symptoms in children (8). This finding was supported in a subsequent review of 16 studies that isolated genetic and environmental risks, which concluded that maternal depression (i.e. symptoms and/or disorder) was a stronger environmental risk to children's internalizing symptoms than paternal depression (9). However, this does not mean fathers' internalizing symptoms do not influence children. Clinical studies have also shown that internalizing symptoms (i.e. not necessarily diagnosed disorders) in both mothers and fathers influence parents' ratings of children's anxiety (10). A review of 23 studies focused on depressive symptoms and/or mood disorders in fathers found that paternal depression was positively associated with more internalizing symptoms in children (11).

Mothers and fathers may influence children's anxiety symptoms differently (12). The traditional masculine role of fathers may involve behaviors such as encouraging risk taking, rougher physical play, and more physical challenging of the child. That is, traditional father behaviors may be argued to represent the more typical "letting go" side of attachment patterns (13). Such paternal behaviors may work to reduce the behavioral inhibition and avoidance displayed by children with elevated anxiety levels. Fathers with high levels of internalizing symptoms may engage less in such challenging behaviors, thus not serve as a buffer against over-anxious avoidance to the same extent as other fathers. The traditional role of mothers arguably typically represents the "holding on" side of attachment patterns (13). According to a model proposed by Bögels and Phares (12), such traditional parental behavior patterns mean children's anxiety levels may be more affected by internalizing symptoms in fathers than by internalizing symptoms in mothers.

There is some, albeit limited, evidence supporting this model on how parental anxiety might influence anxiety in the children. Fathers with anxiety disorders showed less encouragement of their children's autonomy during an observation task compared with fathers without anxiety disorders, a difference not observed among mothers (14). It is therefore important to examine the role of mothers' and fathers' internalizing symptoms in clinical child anxiety studies. This is particularly important in clinical settings, as parental internalizing symptoms may influence outcomes as well as initial child anxiety symptoms (15). Increased understanding of the influences of internalizing symptoms in mothers and fathers for children's anxiety symptoms is thus of high relevance to clinical practitioners.

The aim of the current study was to explore the relationship between parental internalizing

symptoms and children's anxiety symptoms in a clinical sample of children with anxiety disorders. Our main research question was: to what extent are internalizing symptoms in mothers and fathers associated with children's anxiety levels? This question was investigated separately for child self-, mother-, and father-rated child anxiety symptoms. We controlled for child age and gender. Child gender was included as a review of studies examining the role of paternal disorders and children's psychosocial development concluded that paternal disorders may influence boys more than girls (16). Child age was included as mothers and fathers may have different roles in different stages of child development. For example, maternal internalizing symptoms in adolescence may restrain the mother in her role of letting go, whereas paternal anxiety may restrain the father in his role regarding helping the adolescent in the transition to the world outside the family (12). Given the sparsity of studies that have examined the role of internalizing symptoms in mothers versus fathers, and the mixed results across previous studies, we examined the research question with no a priori expectations regarding the relative influence of mothers versus fathers.

Methods

Participants and procedures

The sample comprised 182 children, 165 mothers, and 72 fathers. The children were between 8 and 15 years old ($M_{\text{age}} = 11.5$ years, $SD = 2.1$; 52.2% girls). See Table 1 for background information. Family social class was coded with the occupational social class system (17). This is a coding system in which professional titles are assigned into five social classes ranked from 1 (high; jobs which require top level education; management of big organizations or owners of large scale companies; e.g. Doctor) to 5 (low; manual jobs which require little theoretical training; e.g. Truck driver). The children and parents participated in a clinical study of manualized cognitive behavioral treatment for generalized anxiety disorder (GAD), SAD, and/or SOP in Norway. To be included in the study, the children had to meet the DSM-IV criteria for at least one of the principal diagnoses of GAD, SAD, or SOP, identified with the clinician-administered Anxiety Disorder Interview Schedule for DSM-IV, parent and child versions (ADIS-C/P; 18). There is currently no validated DSM-V based diagnostic interview in Norwegian. Exclusion criteria were intellectual disability, autism spectrum disorder, and/or psychotic disorder. Informed written consent was obtained from all parents and children aged 12 years or older. Verbal assent was obtained from children aged 11 years or younger. The study was approved by the Regional Committee for Medical

and Health Research Ethics. See (19) for further details.

Measures

The Spence Children's Anxiety Scale (SCAS; 20), child and parent versions, were used to assess child anxiety symptoms. The SCAS was completed by children (SCAS-C; $n = 182$), mothers (SCAS-M; $n = 165$) and fathers (SCAS-F; $n = 72$). The SCAS comprises 38 items rated on a four-point scale from 0 (never) to 3 (always). The SCAS-C covers SOP, generalized anxiety, separation anxiety, physical injury fears, panic/agoraphobia and obsessive-compulsive symptoms. The total SCAS has demonstrated satisfactory reliability, and convergent and discriminant validity (20, 21). Internal consistency (Cronbach's α) in the current sample was good to excellent (Children $\alpha = 0.91$; Mothers $\alpha = 0.85$, Fathers $\alpha = 0.90$).

The Depression Anxiety Stress Scale (DASS; 22) was used to assess parental internalizing symptoms. The DASS was completed separately by mothers ($N = 165$) and fathers ($N = 72$). The DASS comprises 42 items rated on a four-point scale from 0 (hardly ever) to 3 (almost always). The items cover parents' self-rated anxiety, depression, and tension-stress symptoms. The DASS has demonstrated satisfactory reliability, and convergent and discriminant validity (22). Internal consistency (Cronbach's α) in the current sample was excellent (Mothers $\alpha = 0.95$; Fathers $\alpha = 0.94$).

We used Norwegian-translated versions of all measures.

Statistical analyses

Preliminary analyses were performed to investigate possible violations of the assumptions of normality and outliers in the statistical analyses, and none were identified. Independent-samples t -tests were performed to compare self-rated internalizing symptoms for mothers versus fathers, mothers' versus fathers' parent-rated child anxiety symptoms, and child self-rated anxiety for boys versus girls. There were no significant differences between participants with available father internalizing symptom data and participants without such data (all $p > 0.139$). Correlations between 0.10 to 0.29 were interpreted as small, between 0.30 to 0.49 as medium, and above 0.50 as large (23).

Results

Child anxiety and parent internalizing symptoms

See Table 1 for descriptive statistics for child anxiety (SCAS-C/M/F) and parent internalizing symptoms (DASS-M/F). There were no significant differences in children's, mothers', or fathers' mean ratings of child anxiety symptom levels (all $p > 0.146$). Age was not significantly associated with children's anxiety symptom levels from any rater perspective. Self-reported anxiety was higher for girls than boys ($p < 0.05$). There were no gender differences in mother- or father-reported anxiety in children ($p > 0.217$). There was no significant difference in internalizing symptoms between mothers and fathers ($p = 0.139$).

Associations between youth anxiety symptoms and parents' internalizing symptoms

See Table 2 for correlations between youth and parent anxiety ratings. Mother- and father-ratings of children's anxiety symptoms were significantly associated with children's self-rated anxiety symptoms. Furthermore, fathers' internalizing symptoms, but not mothers', were significantly correlated with children's self-rated anxiety.

Three multiple regression models were run (see Table 3). In the first model for child self-rated anxiety symptoms (SCAS-C), the predictors were mothers' and fathers' self-rated internalizing symptoms (DASS), child age, and child gender. This model explained 22.0% of the total variance (adj. R^2) in child self-rated anxiety symptoms. Both mothers' and fathers' internalizing symptoms significantly predicted child self-rated anxiety symptoms, whereas child age and child gender did not. In the second model, mother-rated child anxiety symptoms (SCAS-M) was the dependent variable and predictors were mothers' self-rated internalizing symptoms, child age, and child gender. This model explained 7.0% of the total variance in mother-rated child anxiety symptoms. In the third model, the dependent variable was father-rated child anxiety symptoms (SCAS-F), and the predictors were fathers' self-rated internalizing symptoms, child age, and child gender. This model was not significant ($p = 0.300$).

Given the puzzling result that mothers' internalizing symptoms were not correlated with youth symptoms, but predicted them in Model 1, we re-ran Model 1 separating mothers' and fathers' self-rated internalizing symptoms (DASS) as a *post hoc* analysis. That is, we ran Model 1 with mother mental health only (without father mental health) and vice versa. Mothers' internalizing symptoms did not significantly predict youth symptoms in the mother only model ($p = 0.282$). However, fathers' internalizing symptoms was a significant predictor in the father only model ($p = 0.006$). The father only

model explained 10.4% of the total variance (adj. R^2) in child self-rated anxiety symptoms.

TABLE 1. Family factors, child and parent symptoms in a sample of 182 children with anxiety disorders

Family factors		Symptom measures and diagnosis		
Family composition	%	Principal diagnosis	%	
Two-parent household	57.5	Social phobia	46.4	
Single-parent household	19.9	Separation anxiety disorder	32.6	
Biological parent and step-parent	13.3	Generalized anxiety disorder	21.0	
Foster family	1.6	Child anxiety symptoms	<i>M</i>	<i>SD</i>
Not reported	7.7	SCAS-C (<i>n</i> = 182)	36.0	16.6
Family social class	%	SCAS-M (<i>n</i> = 165)	34.9	12.8
High	30.4	SCAS F (<i>n</i> = 75)	33.0	14.1
Medium	51.4	Parent symptoms	<i>M</i>	<i>SD</i>
Low	7.7	DASS-M (<i>n</i> = 165)	12.0	14.5
Not reported	10.5	DASS-F (<i>n</i> = 75)	8.4	11.5

Notes. SCAS, Spence Children's Anxiety Scale; C, Child; M, Mother; F, Father; DASS, Depression Anxiety Stress Scale

TABLE 2. Correlations between child (*n* = 182) anxiety symptoms, parent internalizing symptoms (*n* = 165 mothers; 72 fathers), and child age

Variables	<i>n</i>	1	2	3	4	5	6	7
1. SCAS-C	182	–	0.26***	0.27*	0.09	0.35**	0.08	0.21**
2. SCAS-M	165		–	0.77***	0.27***	0.17	–0.11	–0.10
3. SCAS-F	75			–	–0.04	0.23	–0.02	–0.04
4. DASS-M	165				–	0.22	0.02	–0.02
5. DASS-F	65					–	0.04	0.05
6. Child age	182						–	0.20**
7. Child gender	182							–

Notes. SCAS, Spence Children's Anxiety Scale; DASS, Depression Anxiety Stress Scale; C, Child; M, Mother; F, Father. *Correlation is significant at the $p < 0.05$ level; **Correlation is significant at the $p < 0.01$ level; ***Correlation is significant at the $p < 0.001$ level

TABLE 3. Multiple regression models predicting child anxiety symptoms for children, mothers and fathers

Dependent variables	Predictors	<i>B</i>	<i>CI</i>	<i>SE B</i>	β	<i>t</i>	<i>p</i>	Adj. R^2	<i>F</i>
Model 1 (<i>n</i> = 182)									
SCAS-Child	DASS-M	0.40	(0.04-0.77)	0.18	0.28*	2.219	0.031	0.22	4.90*
	DASS-F	0.48	(0.11-0.84)	0.18	0.33*	2.643	0.011		
	Child age	–0.46	(–2.68-1.76)	1.10	–0.05	–0.147	0.679		
	Child gender	6.48	(–1.78-14.74)	4.11	0.19	1.575	0.122		
Model 2 (<i>n</i> = 165)									
SCAS-Mother	DASS-M	0.24	(0.10-0.37)	0.07	0.27*	3.45	0.001	0.07	5.03*
	Child age	–0.59	(–1.51-0.33)	0.46	–0.10	–1.27	0.206		
	Child gender	–1.82	(–5.75-2.11)	1.99	–0.07	–0.92	0.361		
Model 3 (<i>n</i> = 72)									
SCAS-Father	DASS-F	0.28	(–0.01-0.58)	0.15	0.23	1.902	0.063	0.01	1.25
	Child age	–0.97	(–1.80-1.60)	0.85	–0.01	–0.114	0.910		
	Child gender	–1.64	(–8.36-5.08)	3.36	–0.06	–0.489	0.627		

Notes. SCAS, Spence Children's Anxiety Scale; DASS, Depression Anxiety Stress Scale; C, Child; M, Mother; F, Father
*Significant at $p < 0.05$. Adj. R^2 = adjusted R^2 . *CI* = 95% confidence intervals for unstandardized coefficients

Discussion

We examined the relationship between parent internalizing symptoms and child anxiety symptoms in a clinical sample of children with anxiety disorders. Both mothers' and fathers' internalizing symptoms were associated with children's anxiety ratings. These correlations appeared cross-informants (i.e. parent and child report). Whereas both mothers' and fathers' internalizing symptoms were significant predictors of child-rated anxiety symptoms in a

combined model, only fathers' internalizing symptoms were significant when separate models for mothers and fathers (but including child age and gender) were run. This suggests that fathers' symptoms may be the driving force of the parental effects, which is in line with previous studies focused on the influential role of fathers' anxiety on children's anxiety (12).

However, the pattern was different for parent-rated symptoms for children. Mothers' internalizing

symptoms were significantly correlated with mother-rated anxiety symptoms in children, while the association between fathers' internalizing symptoms and father-rated anxiety symptoms in children was not significant. While this suggests mothers may be more influenced by their own internalizing symptoms when rating their children than what is the case for fathers, the finding should be interpreted with caution as the lower number of fathers may have impaired statistical power to identify small effects.

Our finding that parental symptoms influenced children's anxiety symptoms is in line with several previous studies (5, 6, 24). Investigating potential mechanisms that can explain the overlap between parental internalizing symptoms and child anxiety symptoms was beyond the scope of our study. However, earlier studies have pointed to several factors that may influence the relationship between parental internalizing symptoms and anxiety in children. Such factors may be biological (e.g. genetics), related to parenting (e.g. modeling anxious behavior, over-control, rejection, criticism), or contextual (e.g. conflict between parents; 25-31). These factors are likely to interact to influence parent and child symptoms, and also to influence each other. For example, marital discord, unemployment, lack of social support, and bereavements have been argued to influence parenting behaviors (32). In families of children with anxiety disorders, parental depression and anxiety have been found to predict poorer family functioning, in terms of self-reported affective responsiveness, affective involvement, behavior control, problem solving, communication, roles, and general functioning (33). Studies have shown children with anxiety report more conflict among family members than children without anxiety, and that higher levels of marital conflict is associated with more anxiety symptoms in children (34, 35).

In general, however, parenting behaviors have been found to have small to medium associations with anxiety in children (36, 37). Children with anxiety disorders also influence their parents, and characteristics of the child (e.g., anxiety level, temperament, personality) are likely to influence parenting behaviors (38, 39). Thus, the overlap between parent and child symptoms identified in the current study is likely to be the result of interplay between several family-related factors.

Our study has limitations. We did not assess parent-related factors beyond internalizing symptoms. Although we included a substantial sample of fathers, the sample of mothers was twice the size of fathers. Importantly, there were no differences on child anxiety symptom levels (child and parent-reported) for children with and without participating fathers. However, we cannot rule out

generalization problems to fathers who chose not to participate in research. Inclusion criteria were based on the DSM-IV, as there is no Norwegian DSM-V based interview yet. The sample may have presented with slightly different symptoms if the DSM-V criteria had been applied. Finally, most of the participants were Caucasian, and the results may therefore not be generalized to families of other ethnicities.

Clinical significance

Both mothers' and fathers' internalizing symptoms were associated with children's self-rated anxiety symptoms in a clinical sample of children with anxiety disorder. The main implication is that clinicians should assess parent internalizing symptoms when working with clinical anxious children. Our results, as well as those of others (12), suggest that it may be particularly important to address fathers' symptoms. This may represent a challenge in clinical practice, where mothers typically attend more frequently than fathers (e.g. 40). Given the association between parent and child symptoms, addressing and targeting parent symptoms may potentially be key to case conceptualization. Reviews have shown that parental involvement in CBT for youth anxiety disorders do not enhance outcomes (41, 42). However, a review found that parental involvement did enhance child outcomes when parents had anxiety disorders (41). This represents a further argument for why addressing parents' symptoms is important. If severe anxiety is identified among parents, clinicians working with the child can also assist parents in getting treatment for themselves. This may not only benefit parents, but improved parental functioning will also be beneficial to the child. Further clinical studies are needed to document if and how more thorough and systematic consideration of parental internalizing symptoms at treatment onset may potentially lead to improved outcomes for children in anxiety treatment.

Conflict of interest

The authors report no conflicts of interest.

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